ICONES PLEUROTHALLIDINARUM
XXI

SYSTEMATICS OF MASDEVALLIA

PART TWO

Missouri Botanical Garden

ICONES PLEUROTHALLIDINARUM
XXI

SYSTEMATICS OF MASDEVALLIA PART TWO

M. Subgenus MASDEVALLIA

Section CORIACEAE

Section DENTATAE

Section DURAE

Section REICHENBACHIANAE

M. Subgenus PYGMAEIA

Carlyle A. Luer

Missouri Botanical Garden

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FOREWORD

Part One contained the 100 species attributed to subgenus *Polyantha* at that time. Part Two contains about another 100 species in four sections of subgenus *Masdevallia* and the subgenus *Pygmaeia*. As one of ten subgenera, subgenus *Masdevallia* consists of the majority of the species of the genus. A key to the subgenera and sections has been given on pages 8 and 9 of Part One. Eight sections of subgenus *Masdevallia* are presently accepted. Section *Amaluzae* has been removed to subgenus *Pygmaeia*.

The five species that have been added to subgenus *Polyantha* are included at the end of Part Two. To keep the work current, these pages are numbered to place them in alphabetical sequence within the section; that is, page 105a can be removed, if desired, and inserted between pages 104 and 105 of Part One. This maneuver is accomplished simply in the loose leaf edition, but care should be exercised in removing pages in the glue-bound edition. Further additions are inevitable, hence the present format with text on the odd-numbered page and the illustration on the reverse, the even-numbered page. The pages and plates of Part Two are numbered as continuations of Part One, beginning with page 265 and Plate 133.

Replacement pages with changes in text or keys will eventually be included. These pages will retain the same number but with an exponent (^{1}) to indicate that it is the first change to that page. The page it replaces should be discarded. A page with the exponent (^{2}) will indicate that it is the second change to that page. Most changes will not be printed until the final part.

Because of the growing number of species described in *Masdevallia*, it became evident that a fifth part would be necessary, unless parts two, three and four were increased to cumbersome volumes one-third heavier and thicker.

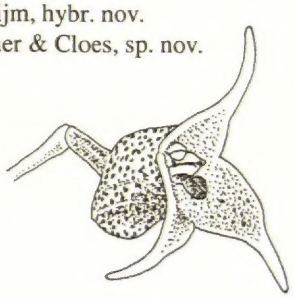
Patient proofreaders of Part Two have been Mrs. Amy McPherson, and Mr. and Mrs. H. Phillips Jesup.

Additional species for Part One:

Masdevallia brachyantha Schltr., sect. *Polyantha*, page 227a, to *precede* page 227.
Masdevallia ingridiana Luer & Portilla, sp. nov., sect. *Alaticaules*, page 105a, to *precede* page 105.
Masdevallia mallii Luer, sp. nov., sect. *Alaticaules*, page 115a, to *precede* page 115.
Masdevallia prolixa Luer, sect. *Alaticaules*, page 155a, to *precede* page 155.
Masdevallia venus Luer & Hirtz, sect. *Alaticaules*, page 207a, to *precede* page 207.

New taxa included in Part Two:

Masdevallia polita Luer & Sijm, hybr. nov.
Masdevallia pyknosepala Luer & Cloes, sp. nov.

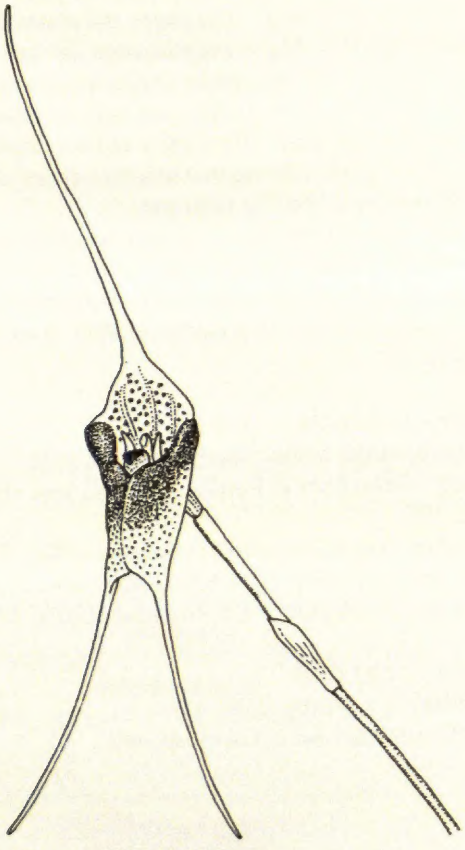


Abbreviations of the names of authors are in accordance with *Authors of Plant Names*, R.K. Brummitt & C.E. Powell, Royal Botanic Gardens, Kew, 1992.

Abbreviations of the names of herbaria are in accordance with *Index Herbariorum*, P.K. Holmgren. N.H. Holmgren & L.C. Barnett, New York Botanical Garden, 1990.

Abbreviations of the titles of publications are in accordance with *Botanico-Periodicum-Huntianum* (BPH), G.H.M. Lawrence, A.F.G. Buchheim, G.S. Daniels & H. Dolezal, Hunt Botanical Library, Pittsburgh, 1968.

The illustrations are selected from a large accumulation of evolving styles made over a 25 year period. Some of the earliest illustrations have been discarded. Those illustrations inked by Stig Dalström since 1992 bear his initial-logo beneath my initials as the illustrator.



Masdevallia misasii

SYSTEMATICS
OF
MASDEVALLIA
PART TWO

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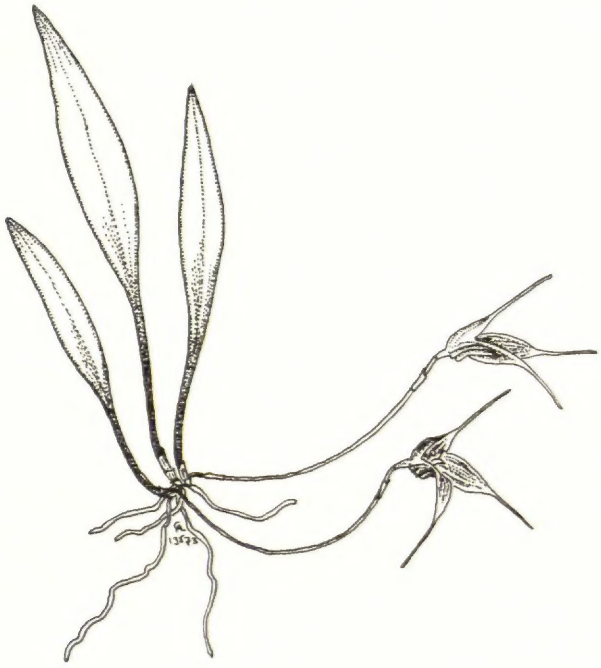
Additional species for Part One follow page 518



Masdevallia hoeijeri Luer & Hirtz, Province of Zamora-Chinchipe, Ecuador, Cordillera del Condor, altitude 1500 meters above sea level, 28 May 1988, photo by Alexander C. Hirtz, four times natural size.

MASDEVALLIA SUBGENUS MASDEVALLIA

Masdevallia subgen. **Masdevallia** Ruiz & Pav., Ann. Mag. Nat. Hist. 12: 396, 1842.
Type: *Masdevallia uniflora* Ruiz & Pav.
Ety.: Named in honor of José Masdevall, physician in the court of Charles III of Spain.

Syn.: *Masdevallia* sect. *Eumasdevallia* Veitch, Man. Orch. Pl. 5: 17, 1889.
Type: *Masdevallia uniflora* Ruiz & Pav.
Ety.: From the genus *Masdevallia* plus the Greek *eu-*, "true," indicating the section containing the true *Masdevallia*.

Plants very small to large, weak to robust, caespitose to shortly or long-repent; roots few to many, slender to coarse or fleshy. Ramicauls ascending to erect, rarely descending, slender to stout, shorter than the leaf, partially or completely enclosed by 2-3 imbricating sheaths, the inflorescence emerging laterally from near the base or near the middle. **Leaf** erect in relation to the ramicaul, thinly to thickly coriaceous, elliptical to narrowly elliptical or obovate to narrowly obovate, the apex acute, obtuse to rounded, shallowly notched at the apex, the base broadly to narrowly cuneate into a petiole. **Inflorescence** a solitary flower, or a successively few-flowered raceme, lax or congested, longer or shorter than the leaf, the peduncle slender to stout, short or long, round in cross section, shaggy-scabrous in one species, with 1-3 bracts; floral bract thin; pedicel slender to stout, longer or shorter than the floral bract; ovary smooth, carinate to verrucose, trivalvate with the ribs smooth to carinate; **sepals** membranous to thickly fleshy, variously colored, smooth to verrucose or pubescent within, broad to narrow, acute to obtuse, variously connate above the base into a cup or tube, usually with the apices contracted into tails that are rarely subclavate; **petals** thin to cartilaginous, usually longitudinally callous, with or without producing a process or tooth on the labellar half or margin, at or above the base; **lip** thin to thick, simple, oblong, ovate to obovate, the apex acute, obtuse to rounded, smooth to verrucose, with or without a callus, entire or denticulate, the disc smooth or with a pair of longitudinal calli, the base truncate to cordate, hinged on the end or beneath; **column** semiterete, the anther ventral, more or less hooded, the apical margins of the column entire to lightly toothed, the rostellum retrorse, the pollinia 2, the stigma ventral, the base of the column developed into a column-foot with the apex of the ovary, with an incurved extension to which the lip is attached.

Although subgenus *Masdevallia* is characterized by a variety of combinations of features, all eight sections share the following characters in common: a single flower which, in many species, is followed by a second; smooth ovaries that are more or less shallowly sulcate between the carpels; and sepals connate for varying distances from above the base to near the apex to form a sepaline cup or tube of various shapes. The callus on the labellar half of the petals is extremely variable, even sometimes absent. The lip is simple, commonly with a longitudinal pair of low calli, and the base is hinged to an extension from the tip of the column-foot.

Vegetatively, the sections are largely inseparable except for the small habit of section *Triotosiphon*. The peduncle of sections *Coriaceae, Masdevallia*, and *Triotosiphon* is always single-flowered. A second flower often follows the first in the other sections. The callus along the labellar margin of the petals of sections *Dentatae, Masdevallia*, and *Minutae* is more or less well-developed, with a protruding or retrorse process. The petals of sections *Coriaceae* and *Reichenbachianae* are callous in varying degrees, but without a protruding process.

Sections *Durae* and *Racemosae* exhibit characters that could place them in separate categories, but they are retained here until future research suggests otherwise. Section *Durae* is retained for its similarity to section *Coriaceae*, and section *Racemosae* is retained for its similarity to subsection *Coccineae*.

KEY TO THE SECTIONS OF SUBGENUS *MASDEVALLIA*

1 Rhizome long-repent; inflorescence a loosely flowered raceme; lateral sepals tailless.....sect. *Racemosae*
1' Rhizome abbreviated.....2

2 Inflorescence 1-flowered.....3
2' Inflorescence 2-flowered or successively flowered.....7

3 Petals without a protruding process.....4
3' Petals with a protruding process.....6

4 Sepals deeply connate into a tube constricted above the middle.....
.....sect. *Triotosiphon*
4' Sepals not connate into a constricted tube.....5

5 Lip thick, verrucose at the apex.....sect. *Coriaceae*
5' Lip thin, smooth or microscopically verrucose at the apex.....
.....sect. *Reichenbachianae*

6 Petals with a small callus above or along the margin between the middle and basal third.....sect. *Minutae*
6' Petals with a well-developed, protruding, marginal process.....
.....sect. *Masdevallia*

7 Petals with 2 distinct or 2 joined, descending, basal processes.....sect. *Dentatae*
7' Petals without 2 descending, basal processes.....8

8 Sepals thickly rigid; lip thick, verrucose at the apex, with basal concavities.....
.....sect. *Durae*
8' Sepals not thickly rigid; lip thin to thick, smooth or microscopically verrucose at the apex, not with basal concavities.....9

9 Petals with a small callus above or along the lower margin between the middle and basal third.....sect. *Minutae*
9' Petals simply callous with or without a low, marginal callus.....
.....sect. *Reichenbachianae*

Masdevallia subgenus **Masdevallia** section **Coriaceae** Rchb.f., Gard. Chron. n.s., 1: 240, 1874.

Type: *Masdevallia coriacea* Lindl., Ann. Mag. Nat. Hist. 15: 257, 1845.
Ety.: From the Latin *coriaceus*, "leathery," referring to the texture of the leaves and possibly also the flowers.

Syn.: *Masdevallia* sect. *Leontoglossae* Rchb.f., Otia Bot. Hamburgensia 1: 15, 1878.
Type: *Masdevallia leontoglossa* Rchb.f., Bonplandia 3: 69, 1855.
Ety.: From the Greek *leontoglossa*, "lion tongue," referring to the rough, tongue-like lip.

This large group of about 40 interrelated species is treated as one of eight sections of subgenus *Masdevallia*. It is characterized by thickly coriaceous leaves that are more or less similar except for the pendent leaves of *M. caesia* and long-petiolate leaves of *M. torta*. The inflorescence is single-flowered; the flower is often malodorous; the peduncle is terete; the ovary is smooth; the sepals are thick, fleshy, variously connate into a cup or tube, and often verrucose within; and the petals are cartilaginous without a prominent, descending process, but the labellar margin is often obtusely angled. The lip is thick, more or less oblong and undivided by lateral folds (with rare partial exceptions), and the obtuse apex is verrucose (also with rare exceptions). The base of the lip is more or less cordate with the basal lobes often concave and possibly nectariferous.

BINOMIALS PUBLISHED IN *MASDEVALLIA* ATTRIBUTABLE TO SECTION *CORIACEAE*

M. aequatorialis Lehm. & Kraenzl. = **M. pardina**
M. aequiloba Regel = **M. civilis**
M. angulata Rchb.f. ..... Plate 133.
M. atahualpa Luer ..... Plates 134, 135.
M. atroviolacea Kraenzl. = **M. mooreana**
M. belua Königer & D.D'Alessandro ..... Plate 136.
M. bilabiata (Kraenzl.) Garay = **M. platyglossa**
M. bogotensis hort. ex Gentil = **M. coriacea**
M. bonplandii Rchb.f. ..... Plates 137, 138.
M. bourdetteana Luer ..... Plate 139.
M. bruckmuelleri Lind. & André = **M. coriacea**
M. burfordiensis hort. = **M. angulata**
M. cacodes Luer & Escobar ..... Plate 140.
M. caesia Roezl ..... Plate 141.
M. campyloglossa Rchb.f. ..... Plates 142, 143, 144, 145.
M. campyloglossa subsp. *ortgiesiana* (Rolfe) Luer = **M. campyloglossa**
M. civilis Rchb.f. & Warsz. ..... Plate 146.
M. colossus Luer ..... Plates 147, 148.
M. coriacea Lindl. ..... Plates 149, 150.
M. coriacea subsp. *bonplandii* (Rchb.f.) Luer = **M. bonplandii**
M. deorsum Rolfe = **M. caesia**
M. dermatantha Kraenzl. = **M. campyloglossa**
M. elephanticeps Rchb.f. & Warsz. ..... Plate 151.
M. elephanticeps var. *pachysepala* Rchb.f. = **M. pachysepala**
M. ellipes Rchb.f. = **M. peristeria**
M. endotrachys Kraenzl. = **M. bonplandii**

M. fertilis Kraenzl. = **M. campyloglossa**
M. foetens Luer & Escobar ..... Plate 152.
M. fractiflexa Lehm. & Kraenzl. ..... Plates 153, 154.
M. fragrans Woolward ..... Plate 155.
M. gargantua Rchb.f. ..... Plates 156, 157.
M. gerlachii Königer = **M. macroglossa**
M. haematosticta Rchb.f. = **M. peristeria**
M. heterotepala Rchb.f. = **M. campyloglossa**
M. hoppii Schltr. = **M. pachyantha**
M. hylodes Luer & Escobar ..... Plate 158.
M. hystrix Luer & Hirtz ..... Plate 159.
M. leontoglossa Rchb.f. ..... Plate 160.
M. lilianae Luer ..... Plate 161.
M. macroglossa Rchb.f. ..... Plates 162, 163.
M. macrura Rchb.f. ..... Plate 164.
M. maloi Luer ..... Plate 165.
M. melina Königer & Meza = **M. lilianiae**
M. metallica Lehm. & Kraenzl. = **M. caesia**
M. misasii Braas ..... Plates 166, 167.
M. mooreana Rchb.f. ..... Plates 168, 169.
M. murex Luer ..... Plate 170.
M. ochracea Burbidge = **M. coriacea**
M. ortgiesiana hort. ex Rolfe = **M. campyloglossa**
M. oscarii Luer & Escobar ..... Plate 171.
M. pachyantha Rchb.f. ..... Plate 172.
M. pachyantha var. *hoppii* (Schltr.) Kraenzl. = **M. pachyantha**
M. pachysepala (Rchb.f.) Luer ..... Plate 173.
M. pardina Rchb.f. ..... Plate 174.
M. peristeria Rchb.f. ..... Plates 175, 176.
M. peristeria subsp. *haematosticta* Rchb.f. = **M. peristeria**
M. picea Luer ..... Plate 177.
M. platyglossa Rchb.f. ..... Plate 178.
M. porcelliceps Rchb.f. = **M. macroglossa**
M. porcelliceps var. *sulphurea* Kraenzl. = **M. bonplandii**
M. reflexa Misas, not Schltr. = **M. misasii**
M. rigens Luer ..... Plates 179, 180.
M. rufolutea Lindl. = **M. picea**
M. sanctae-rosae Kraenzl. ..... Plate 181.
M. sarcophylla Kraenzl. = **M. campyloglossa**
M. semiteres Luer & Escobar ..... Plate 182.
M. sororcula Rchb.f. = **M. mooreana**
M. spilantha Königer ..... Plate 183.
M. stercorea Königer = **M. rigens**
M. sulphurea Lehm. & Kraenzl. = **M. bonplandii**
M. sumapazensis P.Ortiz ..... Plate 184.
M. torta Rchb.f. ..... Plate 185.
M. uniflora H.B.K., not Ruiz & Pav. = **M. bonplandii**
M. velifera Rchb.f. ..... Plate 186.

KEY TO THE SPECIES

1 Leaves pendent ..... *M. caesia*
1' Leaves more or less erect 2

2 Leaves dark green, long-petiolate; sheaths and floral bract inflated ..... *M. torta*
2' Not the above combination 3

3 Peduncle horizontal or descending 4
3' Peduncle ascending, suberect, or erect 9

4 Lateral sepals acute or acuminate, more or less tailless 5
4' Lateral sepals contracted into tails 6

5 Lip with basal lobes concave ..... *M. macroglossa*
5' Lip with the base convex ..... *M. campyloglossa*

6 Lateral sepals with tails longer than the blades ..... *M. mooreana*
6' Lateral sepals with tails no longer than the blades 7

7 Flower green; lateral sepals with tails ca. 2 mm long ..... *M. platyglossa*
7' Flower colorful; lateral sepals with tails more than 2 mm long 8

8 Sepals ca. 6 cm long; petals with 3 purple stripes ..... *M. angulata*
8' Sepals 4-5 cm long; petals with 1 purple stripe ..... *M. leontoglossa*

9 Lateral sepals triangular 10
9' Lateral sepals distinctly or indistinctly narrowed into a thick or thin tail 12

10 Lateral sepals semiconnate, spotted ..... *M. sumapazensis*
10' Lateral sepals free nearly to the base 11

11 Sepals 5-6 mm long, obtuse ..... *M. sanctae-rosae*
11' Sepals 10-22 mm long, acute ..... *M. campyloglossa*

12 Lip constricted below the middle 13
12' Lip not constricted below the middle 14

13 Synsepal acutely deflexed beyond the tube ..... *M. misasii*
13' Synsepal arcuate beyond the tube ..... *M. mooreana*

14 Lip constricted below the apex, widened above the middle 15
14' Lip elliptical, oblong, obovate, ovate 19

15 Lateral sepals obtuse, contracted into tails; lip with apex thickly verrucose ..... *M. murex*
15' Lateral sepals acuminate into tails; lip with apex echinate or scabrous 16

16 Sepals with tails ca. 1 cm long ..... *M. cacodes*
16' Sepals with tails more than 3 cm long 17

17 Sepaline tube small, 6-7 mm wide ..... *M. foetens*
17' Sepaline tube large, 14-15 mm wide 18

18 Petals constricted below middle ..... *M. oscarii*
18' Petals not constricted below middle ..... *M. hystrix*

19 Lip tricallous or trilobulate at the tip 20
19' Lip not tricallous at the tip 21

20 Sepals less than 6 cm long ..... *M. fractiflexa*
20' Sepals more than 9 cm long ..... *M. colossus*

21 Sepals less than 5 cm long including the tail 22
21' Sepals more than 5 cm long including the tail 30

22 Leaves semiterete, less than 10 cm long ..... *M. semiteres*
21' Leaves more than 10 cm long 22

22 Peduncle more than 10 cm long ..... *M. coriacea*
22' Peduncle less than 8 cm long 23

23 Sepals with tails shorter than the blades 24
23' Sepals with tails as long as or longer than the blades 28

24 Lip twice as long as the column ..... *M. macroglossa*
24' Lip not twice as long as the column 25

25 Lip deeply cleft at base, broadly channeled above ..... *M. lilianiae*
25' Lip not deeply cleft at base 26

26 Sepaline tube elongate, constricted above the middle ..... *M. civilis*
26' Sepaline tube broad and short 27

27 Leaves less than 2 cm wide; lip 4-5 mm wide ..... *M. bonplandii*
27' Leaves more than 2 cm wide; lip 9 mm wide ..... *M. bourdetteana*

28 Sepals with tails longer than the blade ..... *M. spilantha*
28' Sepals with tails as long as the blade 29

29 Sepals straight, thickly rigid; lip deeply concave at the base ..... *M. hylodes*
29' Sepals with narrow, recurved tails; lip not deeply concave at the base ... *M. rigens*

30 Peduncle more than 10 cm long 31
30' Peduncle less than 10 cm long 32

31 Sepals 9-10 cm long ..... *M. colossus*
31' Sepals 15-18 cm long ..... *M. macrura*

32 Sepals 10-11 cm long 33
32' Sepals 5-10 cm long 35

33 Sepals with slender tails ..... *M. fractiflexa*
33' Sepals with thick tails 34

34 Sepals deeply connate with tails no longer than the synsepal ..... *M. elephanticeps*
34' Sepals with broad tails much longer than the synsepal ..... *M. pachysepala*

35 Lateral sepals deeply connate, acutely deflexed beyond the tube ..... *M. velifera*
35' Lateral sepals not acutely deflexed 36

36 Lateral sepals deeply connate beyond the tube 37
36' Lateral sepals not deeply connate beyond the tube 39

37 Petals with an obtuse callus on lower margin; lip three-striped ..... *M. fragrans*
37' Petals without an obtuse callus; lip not with three stripes 38

38 Sepals connate into a broad, cylindrical tube ..... *M. gargantua*
38' Sepals connate into a short, campanulate tube ..... *M. pachyantha*

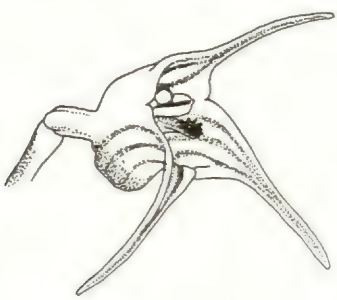
39 Lip broadly and deeply sulcate 40
39' Lip not broadly and deeply sulcate 41

40 Lip with a pair of deep recesses at the base ..... *M. belua*
40' Lip with narrow recesses above the base ..... *M. atahualpa*

41 Leaf rigidly conduplicate basally; sepaline tube narrow ..... *M. maloi*
41' Leaf coriaceous, not conduplicate basally; sepaline tube broad 42

42 Peduncle 5-6 cm long; leaf 2.5-3.5 cm wide ..... *M. pardina*
42' Peduncle less than 3 cm long; leaf 1.5-2.5 cm wide 43

43 Petals oblique, more or less unguiculate ..... *M. peristeria*
43' Petals elliptical ..... *M. picea*



Masdevallia velifera Rchb.f.

Masdevallia angulata Rchb. f., Otia Bot. Hamburgensia 1: 15, 1878.

Ety.: From the Latin *angulatus*, "angled," referring to the mentum of the sepaline tube.

Syn.: *Masdevallia burfordiensis* hort., Gard. Chron. ser. 3, 28: 346, 1900.

Ety.: Named for Burford Lodge where the plant was cultivated by Sir Trevor Lawrence.

Plant large, robust, epiphytic, lithophytic or terrestrial, caespitose; roots coarse. Ramicauls stout, erect, purplish, 3-6.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect to suberect, thickly coriaceous, 8-18 cm long including the 2-3 cm long petiole, the blade oblong-obovate, 2.5-3.5 cm wide, the apex obtuse to rounded, the base cuneate into the stout, channeled petiole. **Inflorescence** a solitary, large, fleshy, foul-smelling flower borne by a suberect to horizontal or descending peduncle 2.5-6 cm long, from low on the ramicaul; floral bract loose, tubular, 12-15 mm long; pedicel 2-3.5 cm long; ovary 5-8 mm long; **dorsal sepal** yellow to orange, dotted and suffused with red or purple, ovate, 25 mm long, 19 mm wide, connate to the lateral sepals for 14 mm to form a broad, cylindrical tube, the free portion triangular with the acute apex contracted into an erect to antrorse, slender tail 20-37 mm long; **lateral sepals** heavily spotted and suffused with dark red-purple, minutely verrucose within, ovate, oblique, 38-53 mm long, connate 27-30 mm into a lamina 35 mm wide, forming a deep, rounded mentum with the column-foot, the triangular free portions contracted into slender tails 15-23 mm long; **petals** cream-colored with 3 purple veins, elliptical, acute, 15 mm long, 5 mm wide, with a low, longitudinal callus along the lower margin; **lip** heavily and diffusely dotted with red-purple, cartilaginous, elliptical, 18 mm long, 8 mm wide, the apex obtuse, verrucose, the disc lightly sulcate, the base subcordate with shallowly concave basal lobes, hinged on the end; **column** white with purple margins, semiterete, 6 mm long, the foot equally long with a short, incurved extension.

ECUADOR: **Pichincha**: near Santo Domingo de los Colorados, mostly on trees, occasionally on rocks, alt. 6800 feet, Mar. 1877, *F.C. Lehmann s.n.* (Holotype: W; Isotype: K); without locality, *J. Linden s,n,* (W); western slopes of Corazón, Conchacato, t. 1519, *F.C. Lehmann 7013* (Holotype: W; Isotype: K, LE); without locality, cultivated by Sir Trevor Lawrence, Burford Lodge, England, 6 Nov. 1900, *F.C. Lehmann s.n.* (BM, K, type of *M. burfordiensis*); old road between Quito and Santo Domingo, alt. 2000 m, 5 Feb. 1963, *C. H. Dodson & L. B. Thien 2232* (GUA, MO, SEL); terrestrial on the road embankment between Quito and Santo Domingo, alt. 2100 m, 17 Aug. 1975, *C. Luer, G. Luer & S. Wilhelm 563* (SEL); epiphytic in cloud forest above Mindo, alt. 1500 m, 11 Nov. 1979, *C. Luer, J. Luer & A. Hirtz 4723* (SEL). **Imbabura**: cloud forest between Otavalo and Apuela, alt. 2000 m, 8 Feb. 1979, *C. Luer, J. Luer & A. Hirtz 3939* (SEL). **Manabí**: summit of Montecriste, alt. 600 m, *E. Besse et al. s.n.* (SEL).
COLOMBIA: **Nariño**: west Andes of Túquerres, *F.C. Lehmann 10028* (K, NY); Junín, above Ricaurte, alt. 1500 m, collected by R. Seket, cultivated at Colomborquídeas, June 1984, *R. Escobar 3213* (MO).

This large, fleshy-leaved species, first collected by Consul Lehmann over a century ago, is relatively common and locally abundant on the western slopes of northwestern Ecuador. It has recently been identified from neighboring southernmost Colombia. Plants grow well in the soil of steep road embankments as well as in the loose humus or among rocks beneath the trees on which they also grow. Plants often aggregate into huge masses and produce simultaneously dozens of malodorous, meat-colored flowers. The heavy, fleshy flowers are borne more or less pendently on short peduncles. The rigid, fleshy sepals are connate into a broad, cylindrical tube, and the free portions are contracted into comparatively slender tails, those of the lateral sepals being shorter than the blades. The petals are thick and obtusely angled above the base. The lip is large, oblong and verrucose.

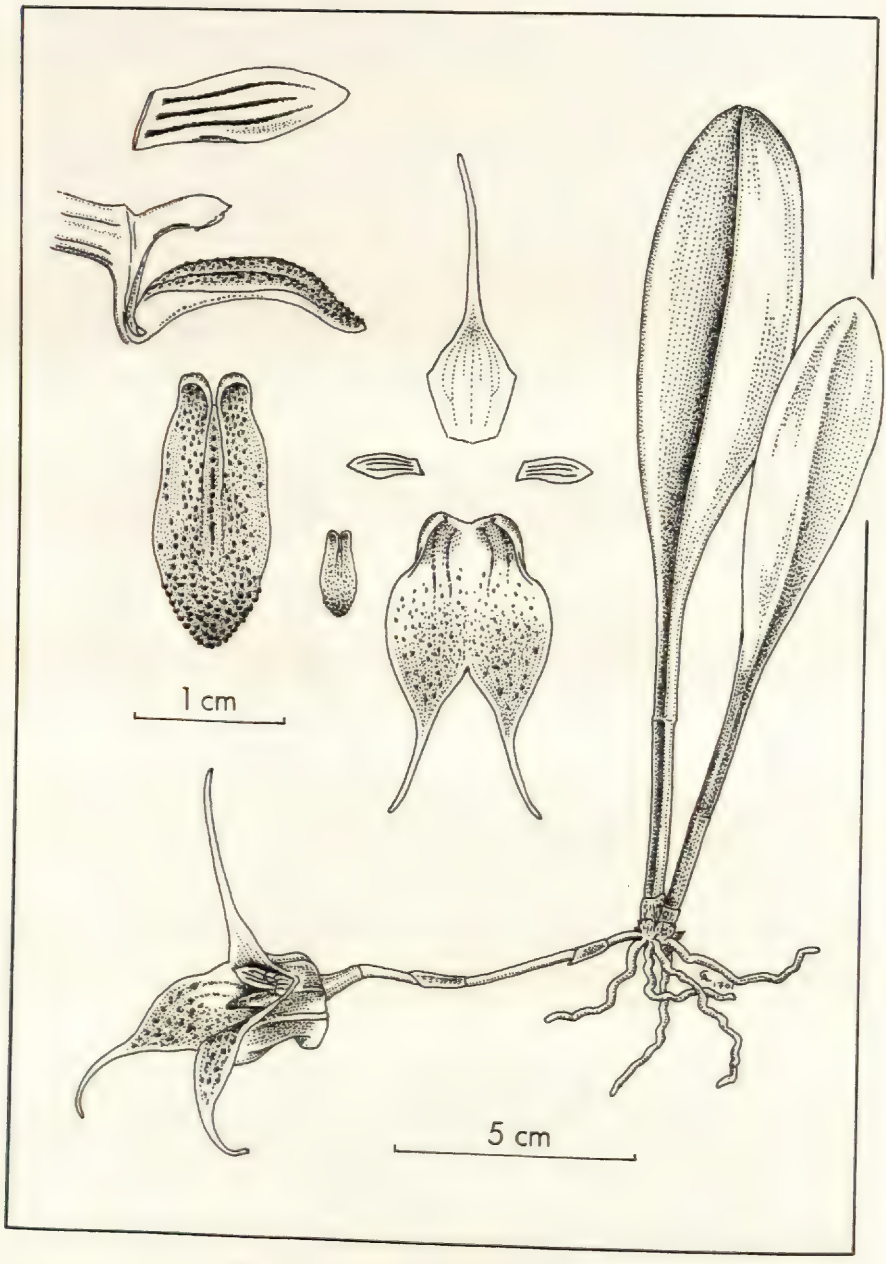
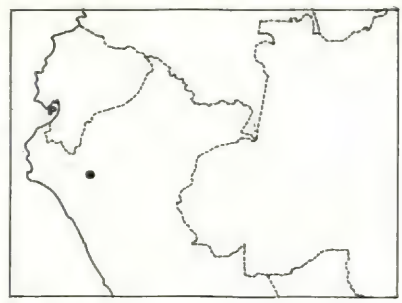


Plate 133. Masdevallia angulata

Masdevallia atahualpa Luer, Selbyana 7: 102, 1982.

Ety.: Named in honor of the Inca emperor Atahualpa who died at the hands of the conquistadors in what is now Cajamarca, Peru.

Plant large, epiphytic, caespitose; roots coarse. Ramicauls stout, erect to suberect, 3-5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect to suberect, thickly coriaceous, 15-22 cm long including the petiole 2-3 cm long, the blade oblong, obtuse, 3-3.7 cm wide, cuneate below into the stout petiole. **Inflorescence** a large, solitary, rigidly fleshy flower borne by a stout peduncle 3-4.5 cm long, with a thin bract at the base, from low on the ramicaul; floral bract 22-28 mm long; pedicel 25-40 mm long; ovary 8-10 mm long; **dorsal sepal** green, sometimes lightly dotted with purple within on the free portion, obovate, 25-27 mm long, 13-15 mm wide, connate to the lateral sepals for 13-14 mm to form a broad, cylindrical tube, the free portion triangular, the acute apex contracted into a thick, forwardly directed yellow tail 30-35 mm long; **lateral sepals** green, heavily suffused with dark purple to near the apices, sometimes to the margins, minutely subverrucose within, obliquely obovate, 25-27 mm long, connate 16 mm into a lamina 23-25 mm wide expanded, the subacute apices contracted into thick, yellow-green tails ca. 25 mm long; **petals** cream-colored with purple midvein, cartilaginous, oblong-rhomboid, obtuse, 12 mm long, 4.75 mm wide, obtusely angled on both thickened margins near the middle; **lip** thick, deep purple, obovate, 14 mm long, 6.5 mm wide, the apex rounded, verrucose, denticulate, the disc broadly sulcate between oblique calli above the middle and between verrucose calli below the middle, the base subcordate, presumably nectariferous, concave on the end, hinged beneath; **column** green with purple margins, semiterete, 10 mm long, the foot 7 mm long with an incurved extension.



PERU: **Amazonas**: near "La Providencia," collected by J. Meza, 27 Aug. 1980, *C. Luer, J. Luer, W. Königer & H. Königer 5429* (Holotype: SEL; clonotype: K); same collection, cultivated at Colombor-quídeas, 11 May 1985, *C. Luer 11340* (MO).

This large species was collected by collector Jorge Meza somewhere in the department of Amazonas in northern Peru. The collection was represented by a number of large plants that produce large flowers with varying degrees of purple suffusion on the blades of the lateral sepals, reminiscent of the larger flowered *M. elephanticeps* of the Eastern Cordillera of Colombia.

Vegetatively indistinguishable from other large species of the section, *M. atahualpa* is characterized by the peduncle about the same length as the ramicaul and the stout pedicel it bears. The sepals are fleshy, glabrous externally, minutely pubescent or subverrucose within, and with the blades connate into a cylindrical tube. The lateral sepals are dark purple with stout, yellow tails about as long as the blades. The elliptical petals are fleshy-thickened along both margins. The large lip is obovate and deep purple, channeled centrally to the verrucose apex.

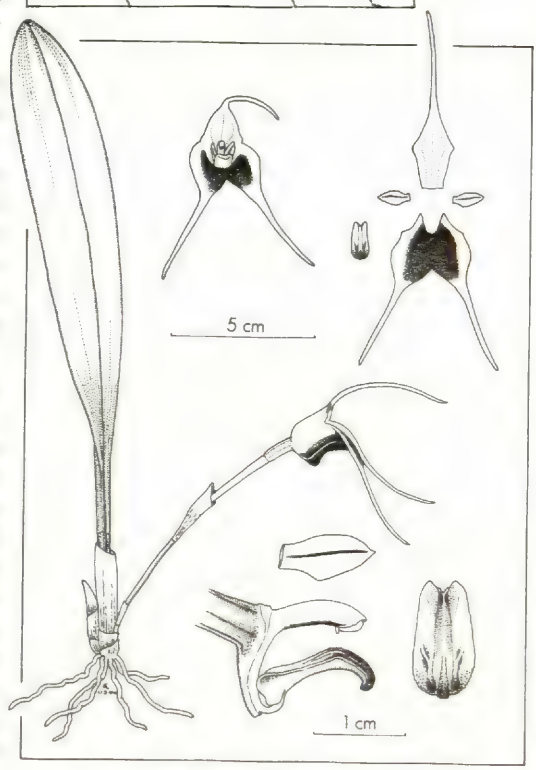


Plate 134. Masdevallia atahualpa

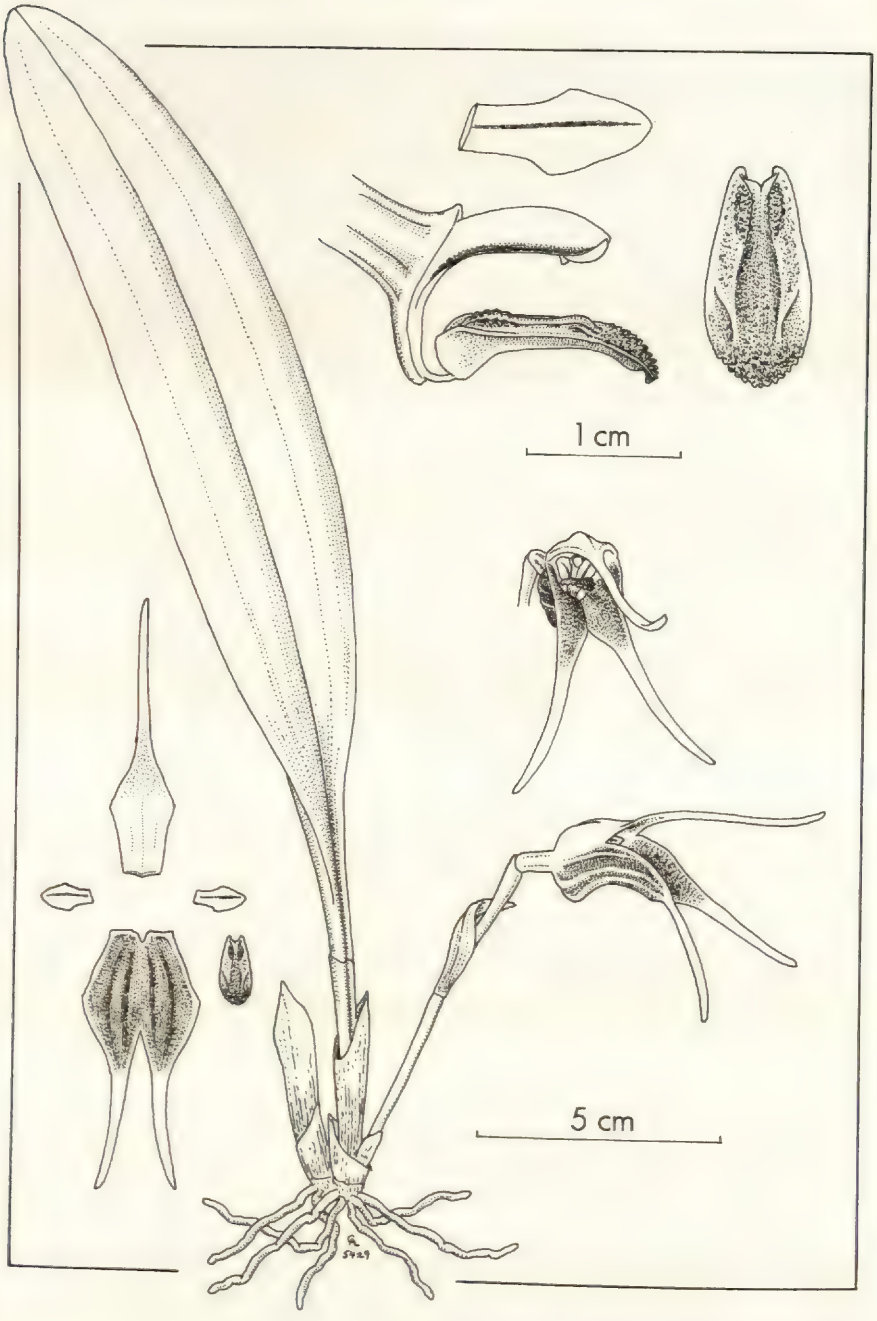


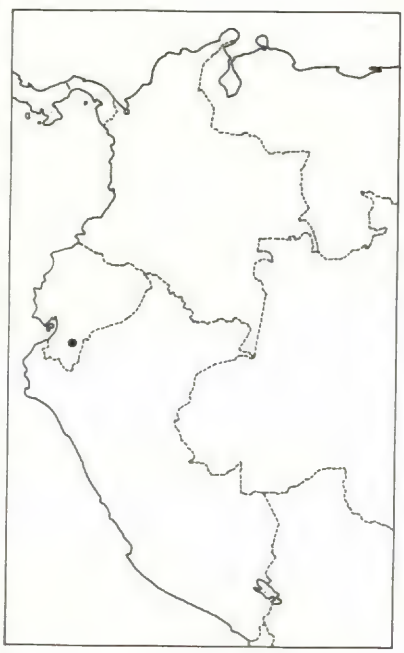
Plate 135. Masdevallia atahualpa

Masdevallia belua Königer & D'Alessandro, Die Orchidee 44: 142, 1993.

Ety.: From the Latin *belua*, "a monster," referring to the size of the flower.

Plant large, epiphytic, caespitose; roots coarse. Ramicauls stout, erect to suberect, 4-7 cm long, enclosed by 2-3 loose, more or less inflated, tubular sheaths. **Leaf** erect to suberect, thickly coriaceous, 11-17 cm long including an indistinct petiole, the blade elliptical, obtuse to rounded, 3-4 cm wide, cuneate below into the subpetiolate base. **Inflorescence** a solitary, malodorous flower borne by a suberect peduncle 4-6 cm long, with a bract near the base, from low on the ramicaul; floral bract 3 cm long; pedicel stout, 4-6 cm long; ovary 6-7 mm long; **sepals** thick, fleshy, glabrous externally, minutely pubescent within, the dorsal sepal green, suffused with purple, ovate, ca. 25 mm long, 20 mm wide, connate 10 mm to the lateral sepals to form a broad, cylindrical tube, the free portion triangular, the apex acute, acuminate into a thick, purple tail ca. 4 cm long, the entire length 66 mm, the lateral sepals purple, oblique, ovate, 18 mm wide, gradually tapered into thick tails, the entire length 67 mm, connate 10 mm; **petals** light yellow with purple midvein, more or less oblong, acute, 13 mm long, 6 mm wide, both margins with a thickened angle between the middle and apical thirds; **lip** thick, cartilaginous, dark purple-brown, oblong, 15 mm long, 8 mm wide, the obtuse apex obscurely trilobed, verrucose, the disc cleft between thickened halves, the base cordate with a pair of deep, rounded recesses, hinged beneath; **column** white with thin purple margin, semiterete, 11 mm long, the foot equally long, with an incurved extension.

ECUADOR: **Zamora-Chinchipe**: between Loja and Zamora, alt. 2300 m, 16 Aug. 1990, *W. Königer, H. Königer & D. D'Alessandro K-211* (Holotype: M; Clonotypes: K, QCA, Herb. H. Königer); between Loja and Zamora, collected by E. Sánchez, cultivated by A. Andreetta at Paute, 24 May 1988, *C. Luer 13657* (MO); same area, alt. 2250 m, 17 Mar. 1990, *E. Dreise, D. D'Alessandro & H. Mendoza s.n.* (MO); same area, alt. 2300 m, 21 Jan. 1992, *C. Luer, J. Luer, P. Jesup & A. Jesup 16086* (MO).



This large species, apparently endemic in southeastern Ecuador was first collected by Dr. Eduardo Sánchez of Cuenca, and cultivated by Padre Andreetta at Paute. It is superficially similar to the sympatric *M. colossus*. The sepaline tails of *M. belua* are broad and deep red-purple. The petals angled on both margins below an acute apex are similar to those of *M. colossus* and the smaller *M. fractiflexa*. The apex of the lip of both the latter species is tricallous, while the apex of the lip of *M. belua* is rounded and obscurely trilobulate. The base of the lip of *M. belua* is cordate with a pair of deeply concave recesses, similar to those seen in *M. bourdetteana*.

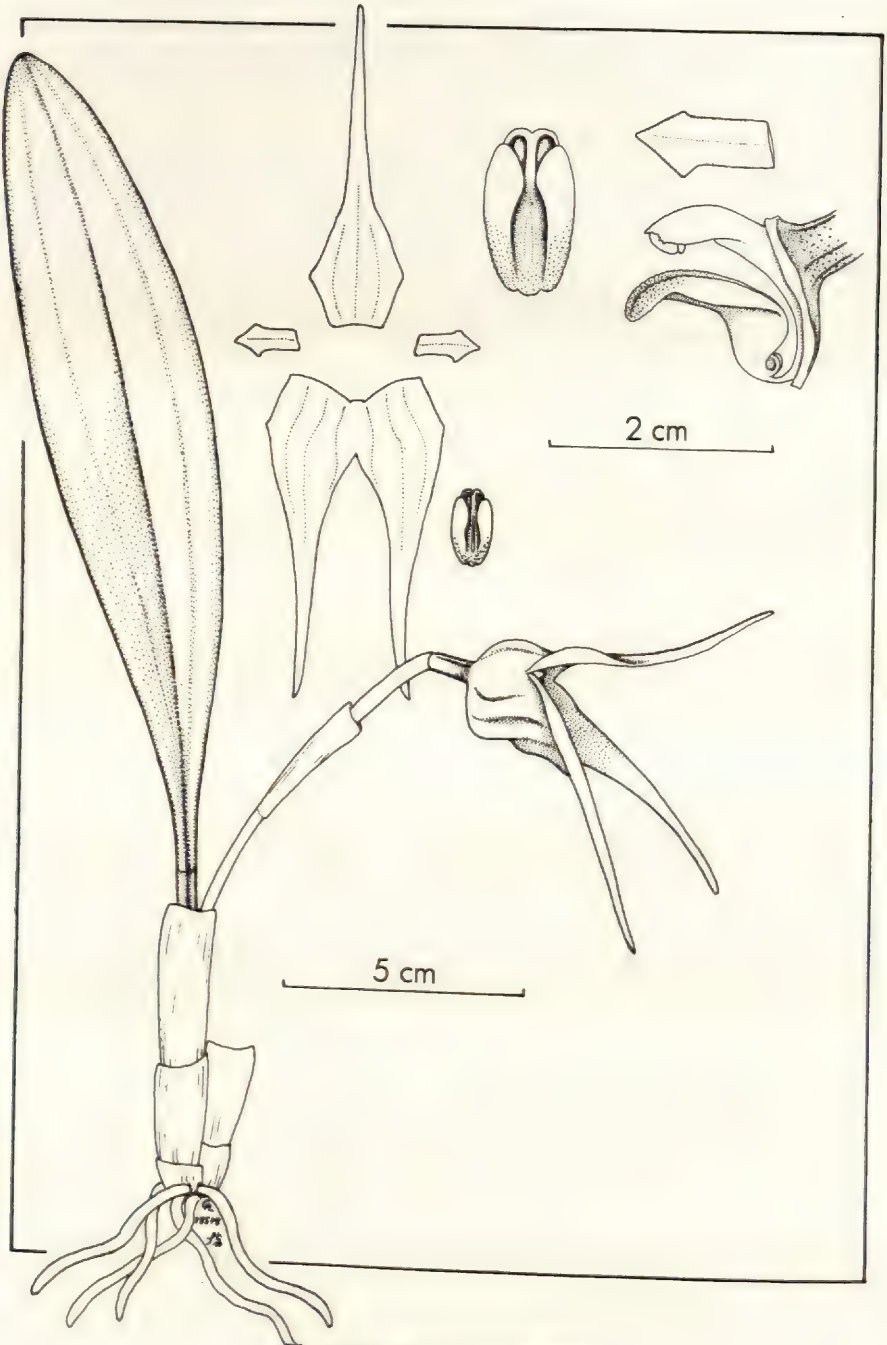


Plate 136. Masdevallia belua

Masdevallia bonplandii Rchb. f., Bonplandia 3: 69, 1855.

Ety.: Named in honor of Aimé Bonpland, co-discoverer of this species.

Syn.: *Masdevallia uniflora* H.B.K., Nov. Gen. Sp. Pl. 1: 361, t. 89, 1816, not Ruiz & Pav.
Ety.: From the Latin *uniflorus*, "one-flowered," referring to the habit of the plant.

Syn.: *Masdevallia sulphurea* Lehm. & Kraenzl., Repert. Spec. Nov. Regni Veg. 17: 423, 1921.
Ety.: From the Latin *sulphureus*, "sulphur-colored," referring to the color of the flowers.

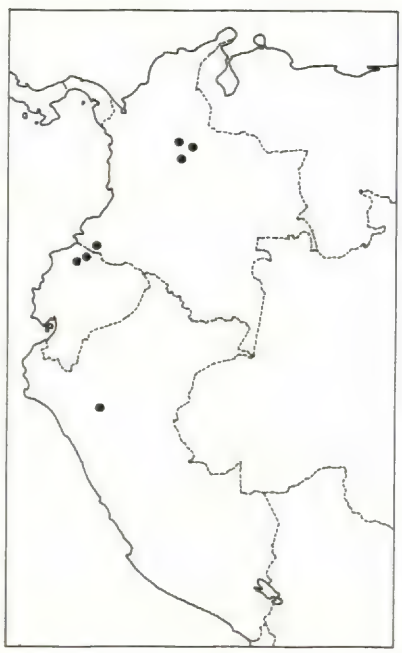
Syn.: *Masdevallia endotrachys* Kraenzl., Bull. Misc. Inform. 107, 1925.
Ety.: From the Greek *endotrachys*, "rough inside," referring to the verrucose lip.

Syn.: *Masdevallia porcelliceps* Rchb. f. var. *sulphurea* Kraenzl., Repert. Spec. Nov. Regni Veg. Beih. 34: 75, 1925.

Syn.: *Masdevallia coriacea* Lindl. subsp. *bonplandii* (Rchb.f.) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 16: 23, 1986.

Plant medium in size, terrestrial, densely caespitose; roots fleshy, coarse. Ramicauls stout, erect, 1.5-8 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** suberect to erect, thickly coriaceous, obovate-linear to semiterete, obtuse, sulcate, 8-15 cm long, 0.7-1.5 cm wide, gradually narrowed below to the subpetiolate base. **Inflorescence** a solitary flower borne by a stout, suberect to erect peduncle 1.5-8 cm long, spotted with purple, with a bract near the base, from low on the ramicaul; floral bract 1-2 cm long; pedicel 2.5-5.5 cm long; ovary 6-8 mm long; **sepals** rigidly fleshy, minutely short-pubescent within, light green, dotted or spotted with purple along the veins, variously suffused with purple, the blade of the dorsal sepal obovate, 12-15 mm long, 9-13 mm wide, connate 6-10 mm to the lateral sepals to form a broad, cylindrical, sepaline tube, the apex subacute to obtuse, contracted into a thick, brownish tail 5-10 mm long, the lateral sepals ovate, oblique, connate 10-13 into a bifid lamina, 15-18 mm long, 13-18 wide expanded, the apices acute to subacute, contracted into thick tails 4-10 mm long; **petals** white with a purple midvein, oblong, subacute, obscurely bluntly apiculate, 4-8 mm long, 3-4 mm wide, the labellar margin thickened, with an obtuse angle between the middle and lower thirds; **lip** heavily suffused with purple, oblong-obovate, thick, 9-10 mm long, 3.5-4.5 mm wide, shallowly channeled centrally between low, longitudinal calli, the apex obtuse to rounded, verrucose, the base subcordate, hinged beneath; **column** white with purple margins, semiterete, 7-9 mm long, the foot 3-5 mm long, with an incurved extension.

ECUADOR: **Carchi**: "in subfrigidis regni Quitensis prope Villa de Ibarra, Tulcán, pontem Rumichaca et Ypiales, alt. 1180-1600 hex." (2124-2880 m), Jan. 1802, *Humboldt & Bonpland s.n.* (Holotype: P; Isotype: G); same area, alt. 2000-2500 m, 8 Feb. 1880, *F.C. Lehmann 479* (holotype of *M. sulphurea*: W; isotypes: BR, G, W); same area, near San Gabriel, alt. 2750 m, 20 Feb. 1978, *C. Luer, J. Luer & A. Hirtz 2640* (SEL); same area, alt. 2750 m, 13 Jan. 1992, *C. Luer, J. Luer, P. & A. Jesup 15591* (MO). **Imbabura**: terrestrial, Páramo de Tuza, alt. 2800 m, 31 Jan. 1881, *F.C. Lehmann 318* (BR, W): terrestrial in volcanic soil, around Tuza, El Puntal, alt. 2500-2800 m, Jan. 1878, *F.C. Lehmann 6741* (holotype of *M. endotrachys*: K; isotypes: AMES, G, LE, NY, US, W); Lago Cuicocha, alt. 3300 m, 27 May 1939, *C.W. Penland & R.H. Summers 729* (AMES); Mt. Cotacachi above Lake Ciucocha, alt. 3300 m, 11 Apr. 1956, *E. Asplund 20248* (S); Laguna Cuicocha, alt. 3100 m, 24 May 1973, *L. Holm-Nielsen, S. Jeppesen, B. Løjtnant & B. Øllgaard 6365* (AMES, AAU); Cotacachi, Lago Cuycocha, alt. 11,200 ft., 23 July 1974, *T. Plowman, C. Sheviak & E.W. Davis CS-830* (AMES). **Pichincha**: Loma Tablarumi, between Olmedo and Laguna San Marcos, alt. 3400-3500 m, 18 Dec. 1987, *U. Molau & B. Eriksen 2091* (GB).
COLOMBIA: **Santander**: Vetas, above La Baja, alt. 2900 m, 20 May 1982, *C. Luer, R. Escobar & D.*



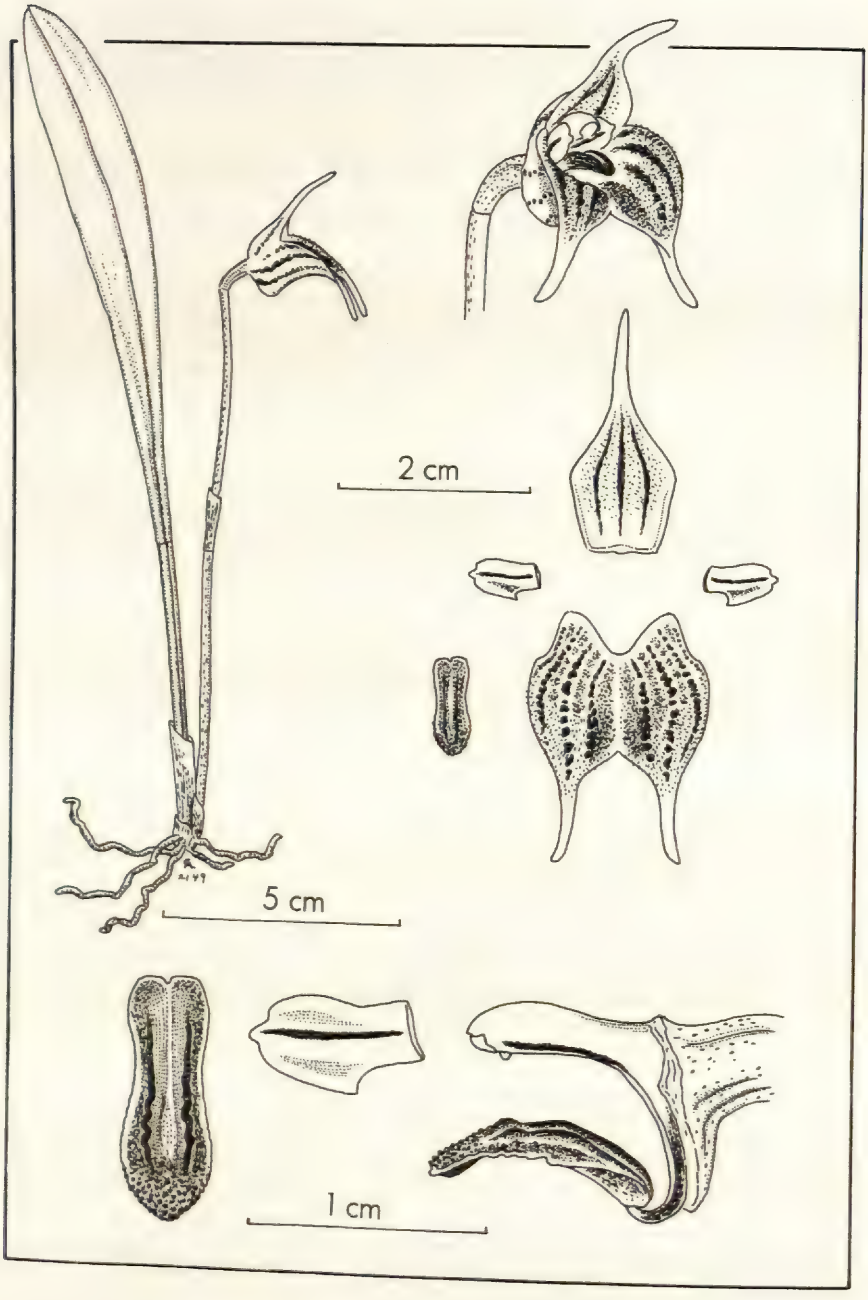


Plate 137. Masdevallia bonplandii

Portillo 7879 (SEL). **Boyacá**: Páramo Concavo, near de la Virgen de los Tunebos, alt. 3700 m, 6 June 1973, *A.M. Cleef 10018* (AAU, COL); Páramo Concavo above Hda. Esperanza, alt. 3750 m, 30 May 1982, *C. Luer & R. Escobar 7988* (SEL). **Cundinamarca**: Páramo de Fusagasuga, alt. 2800 m, 31 Jan. 1881, *F.C. Lehmann 318* (W).
PERU: **Cajamarca**: near Celendín, collected by J. Meza, cultivated by B. Würstle in Spielberg, Germany, 25 May 1980, *C. Luer 5245* (SEL).

Masdevallia bonplandii is little more than a variation of *M. coriacea* that grows frequently as a terrestrial in paramos of the Eastern Cordillera of Colombia, but it is much more widely distributed. It was first collected by Humboldt and Bonpland nearly two centuries ago in northern Ecuador where it still grows abundantly in fully exposed grassy hillsides. It was published as the *M. uniflora* of Ruiz and Pavón, one of the few other species known in the genus at that time. Realizing the difference, Reichenbach described the latter as *M. bonplandii*.

The typical *M. bonplandii* is easily distinguishable from typical *M. coriacea*, but intermediate forms are found throughout the range of *M. bonplandii* from eastern Colombia to central Peru. *Masdevallia bonplandii* is usually smaller with narrower, more or less semiterete, sulcate leaves. The peduncles of *M. bonplandii* are shorter and the flowers are smaller, except that the petals and lips of the two taxa are about the same in size and shape. The sepals of *M. bonplandii* are usually marked with purple, either in heavy spots along the veins or in various degrees of suffusion.

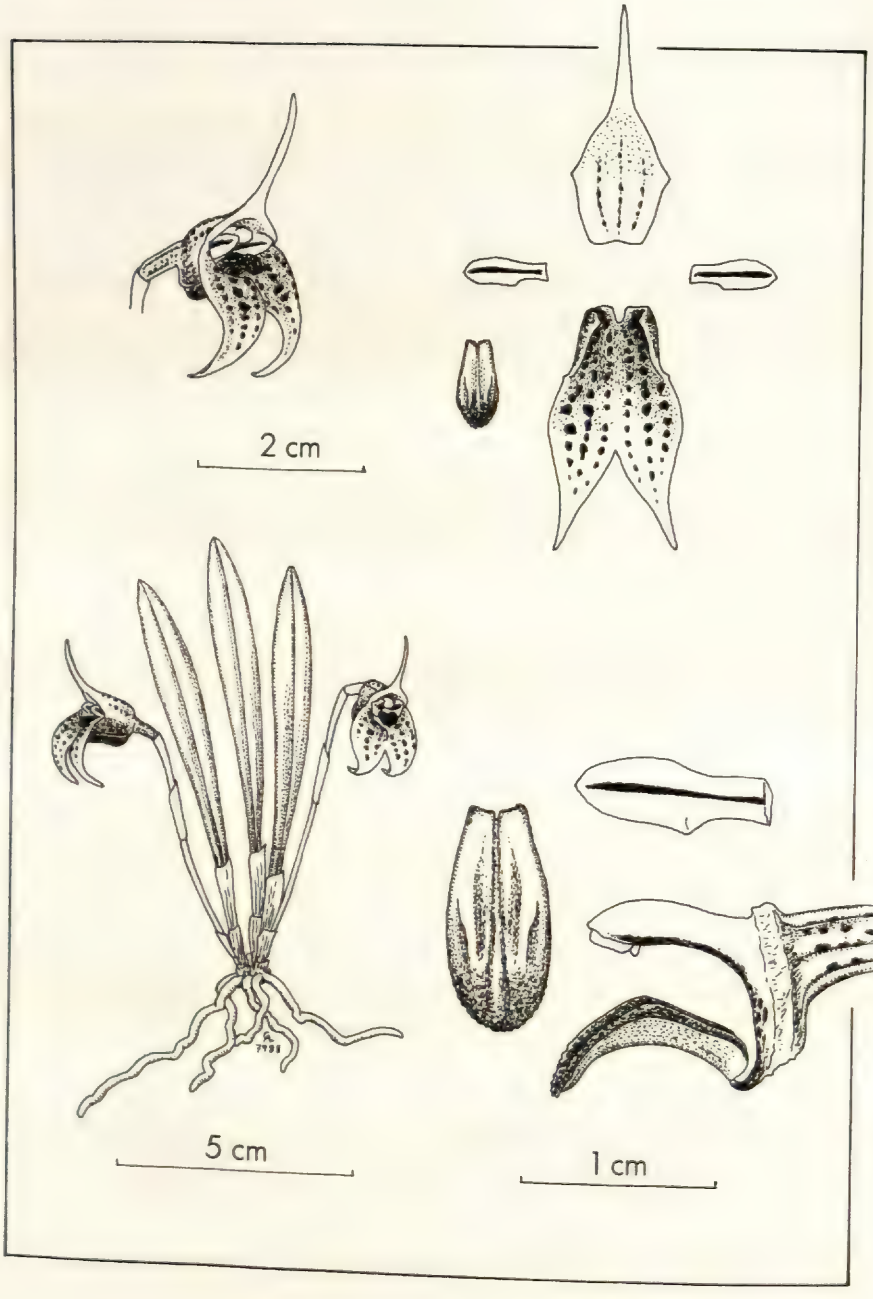


Plate 138. Masdevallia bonplandii

Masdevallia bourdetteana Luer, Lindleyana 9: 103, 1994.

Ety: Named for Wayne Bourdette of Oyster Bay, NY, who submitted the species for identification.

Plant large, robust, presumably epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 2.5-3 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect to suberect, thickly coriaceous, 9-14 cm long including the 1-2 cm long petiole, the blade elliptical-oblong, 2-3 cm wide, the apex obtuse to rounded, the base cuneate into the stout, channeled petiole. **Inflorescence** a solitary, large, fleshy flower borne by an erect to suberect peduncle 3 cm long, from low on the ramicaul; floral bract tubular, 15 mm long; pedicel 3-3.5 cm long; ovary 10 mm long; **sepals** thick, fleshy, glabrous externally, minutely cellular-papular within, the dorsal sepal dull yellow, dotted and suffused with red-purple, ovate, 25 mm long, 18 mm wide, connate to the lateral sepals for 10 mm to form a broad, cylindrical tube, the free portion triangular with the subacute apex contracted into an erect or antrorse, thick tail 20 mm long, the lateral sepals heavily spotted and suffused with dark red-purple, ovate, oblique, 30 mm long, 17 mm wide, connate 10 mm, forming a deep, rounded mentum with the column-foot, the triangular free portions contracted into thick tails 15 mm long; **petals** cream-colored with a thin purple midveins, oblong, obtuse, 12 mm long, 5.5 mm wide, slightly dilated above the middle, slightly sulacte centrally between the thickened halves; **lip** heavily and diffusely marked with red-purple, cellular glandular, thickly cartilaginous, elliptical, 13 mm long, 9 mm wide, the apex broadly obtuse with a low, midline callus, the disc longitudinally sulcate between thickened halves, the base subcordate with concavities continuous with the central sulcus, hinged on the end; **column** white with purple margins, semiterete, 11 mm long, the foot equally long with a short, incurved extension.

ECUADOR: Without collection data, imported by J & L Orchids from an unrecorded source, Sept. 1990, cultivated in Oyster Bay, NY, Dec. 1993 by *W. Bourdette s.n.* (Holotype: MO).

This large, fleshy-leaved species was obtained from Ecuador with plants labelled *M. colossus*, but collection data are unknown. Most likely it was collected in the province of Zamora-Chinchipe where gigantic specimens similar to *M. fractiflexa* are known. They are so similar to *M. colossus* that they probably represent a geographical variation.

Masdevallia bourdetteana most closely resembles the well-known *M. angulata*. It differs from the latter by the erect peduncle, thick tailed sepals that do not form a broad synsepal, and a deeply sulcate lip. From *M. belua, M. colossus* and variations of *M. fractiflexa*, it differs in the smaller flower with much shorter tails, and the sulcate lip.

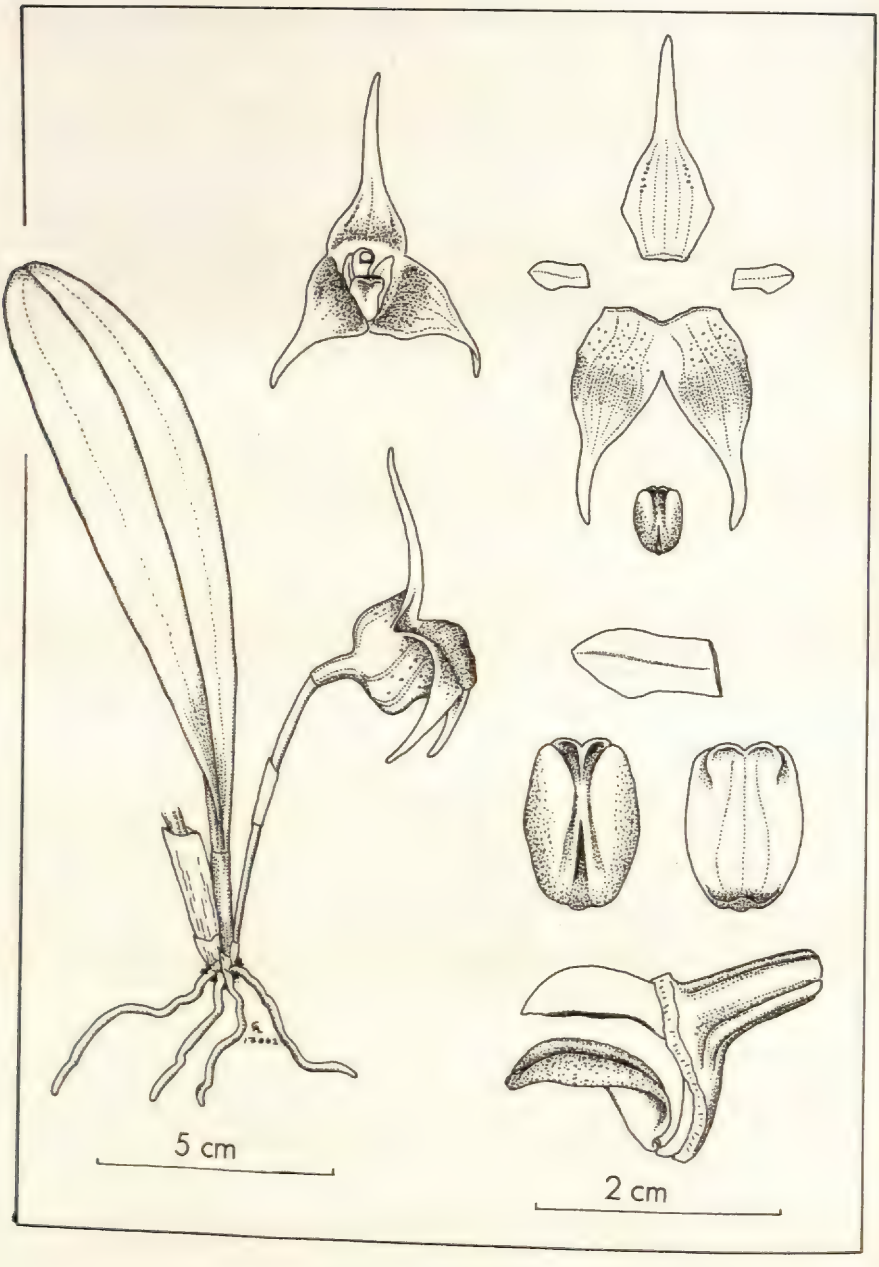


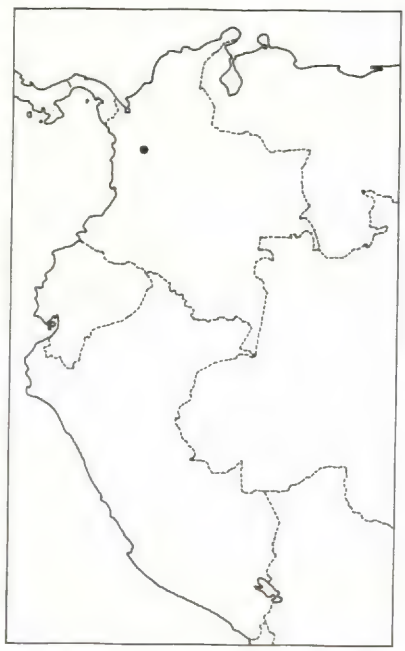
Plate 139. Masdevallia bourdetteana

Masdevallia cacodes Luer & Escobar, Selbyana 7: 70, 1982.

Ety.: From the Greek *kakodes*, "stinking," referring to the malodorous flower.

Plant medium in size, epiphytic, caespitose; roots coarse. Ramicauls erect, stout, 2-3 cm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, dark green, thickly coriaceous, 7-14 cm long including an indistinct petiole ca. 2 cm long, the blade narrowly elliptical, acute, 1.4-1.8 cm wide, gradually narrowed below to the subpetiolate base. **Inflorescence** a solitary, foul-smelling flower borne by a suberect peduncle ca. 1.5 cm long, with a basal bract, from low on the ramicaul; floral bract tubular, 10-11 mm long; pedicel 18-20 mm long; ovary 8-10 mm long; **sepals** fleshy, glabrous, purple with longitudinal, green veins externally, mottled with purple within, the dorsal sepal oblong, 15 mm long, 9 mm wide, connate to the lateral sepals for 10 mm to form a cylindrical tube, the free portion broadly triangular, the obtuse apex produced into a stout, green, antrorse tail 15 mm long, the lateral sepals oblong, connate 10 mm to form a concave, oblong lamina 15 mm long, 12 mm wide unexpanded, forming a deep, rounded mentum with the column-foot, the triangular free portions deflexed, the acute apices contracted into thick, green tails 10 mm long; **petals** cream with 3 prominent, longitudinal, purple stripes, narrowly oblong, 7 mm long, 2 mm wide, cartilaginous, longitudinally concave, the midvein prominent externally, the apex rounded to truncate, slightly narrowed above the base; **lip** dark red-purple, thick, verrucose, obovate, 7 mm long, 5 mm wide, the apex spiculate, trilobed, the lobes obtuse, denticulate, the base subcordate, incised, hinged beneath; **column** cream, suffused with red, semiterete, 6 mm long, the foot 5 mm long with a short, incurved extension.

COLOMBIA: **Antioquia**: Munic. of Carolina, Tenche, Represa de Miraflores, alt. 1950 m, 11 Oct. 1975, collected by O. J. Arango & G. Misas, cultivated by Arango at La Estrella, 25 Sept. 1977, *C. Luer 1841* (Holotype: SEL; Isotype: JAUM); Represa de Guatapé, alt. 1800-2000 m, 1975, collected by O. J. Arango & G. Misas, cultivated at La Ceja by M. & O. Robledo, Oct. 1977, *R. Escobar s.n.* (JAUM); same collection, cultivated at La Ceja by M. & O. Robledo, 19 Mar. 1989, *C. Luer 14279* (MO).



This species has been found growing epiphytically in the thickly forested hills around dam sites in the Central Cordillera of Colombia north of Medellín, where it seems to be restricted. It is accompanied by *M. foetens*, also endemic to the area, and the common and widely distributed *M. platyglossa*, as well as numerous other orchids native to the area. It was discovered by two orchid enthusiasts: O. Arango and G. Misas of Medellín.

The flowers are foul-smelling, similar to those of its long-tailed relative *M. foetens*. Both species are characterized by cartilaginous petals with three prominent, longitudinal purple stripes, but lacking any development of a tooth, and a lip markedly verrucose and three-lobed at the apex.

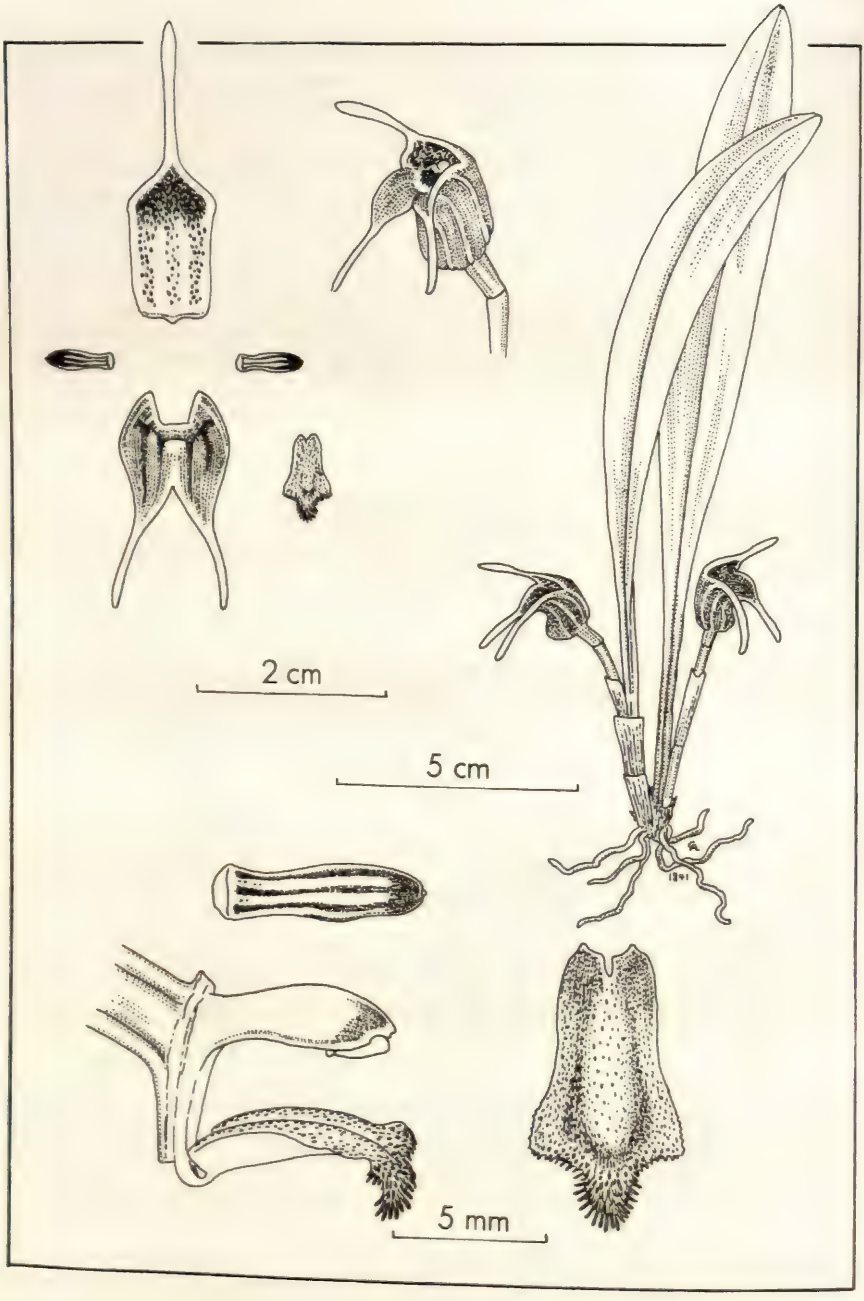


Plate 140. Masdevallia cacodes

Masdevallia caesia Roezl, L'Orchidophile 1: 599, 1881.

Ety.: From the Latin *caesius*, "lavender blue," referring to the bluish color of the leaves.

Syn.: *Masdevallia deorsum* Rolfe, Orchid Rev. 8: 255, 1900; et Gard. Chron ser. 3, 28: 395, 419, 1900, as *deorsa*.

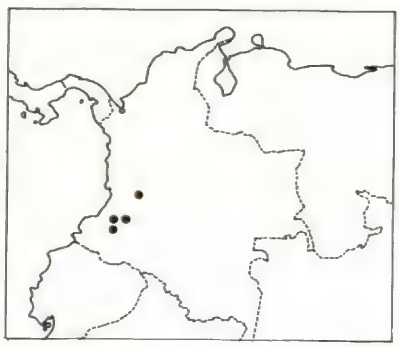
Ety.: From the Latin adverb *deorsum*, "downward," referring to the pendent habit of the plant.

Syn.: *Masdevallia metallica* Lehm. & Kraenzl., Repert. Spec. Nov. Regni Veg. Beih. 34: 70, 1925.

Ety.: From the Latin *metallicus*, "metallic," referring to the blue-green sheen of the leaves.

Plant large, epiphytic, caespitose; roots coarse. Ramicauls stout, descending, 2-3 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** pendent, thickly coriaceous, suffused with bluish purple, especially beneath, 12-45 cm long including the petiole 4-10 cm long, the blade narrowly obovate, subacute to obtuse, 1.5-3 cm wide, gradually narrowed to the base. **Inflorescence** a large, solitary flower, borne by a descending peduncle 2-5 cm long, dotted with purple, with a bract at the base, from near the base of the ramicaul; floral bract tubular, 10-18 mm long; pedicel 3.5-4 cm long; ovary 10-12 mm long; **sepals** dark yellow, mottled and spotted with red-brown, the dorsal sepal ovate, 25-30 mm long, 12-14 mm wide, connate to the lateral sepals for 12 mm to form a cylindrical sepaline cup, the apex acute, gradually attenuated into a slender, orange tail 7-9 cm long, the lateral sepals spreading, ovate, oblique, 40-45 mm long, 14-15 mm wide, connate 16 mm to form a broad mentum with the column-foot, the acute apices gradually contracted into slender tails 6-7 cm long; **petals** greenish white, oblong-obovate, acute, 13 mm long, 5 mm wide, halves with a low, longitudinal callus, the labellar margin obtusely angled; **lip** yellow, diffusely spotted with purple, oblong, obtuse, 18 mm long, 6-7 mm wide, spiculate-verrucose with denticulate-fimbriate margins above the middle, the base subcordate, the basal lobes concave, hinged beneath; **column** pale white, semiterete, 10 mm long, the foot 5 mm long with a short, incurved extension.

COLOMBIA: Without locality, 1894, cultivated by F.W. Moore at the Royal Botanic Garden, Glasnevin, *F.C. Lehmann s.n.* (holotype of *M. deorsum*: K). **Cauca**: epiphytic in humid forest between Quilichao and Río Amboló, near Cali, alt. 2000 m, 5 Mar. 1883, *F.C. Lehmann 2689* (holotype of *M. metallica*: BR; isotypes: BM, G); Andes west of Popayán, alt. 1600-2200 m, May 1884, *F.C. Lehmann 7046* (AMES, K, M); above El Tambo, alt. 2000 m, 18 Jan. 1935, *K. von Sneidern 360* (G, S); same collection data, *K. von Sneidern 121* (AMES). **Risaralda**: Santuario, alt. 2000 m, 1983, collected by P. Alvarez, cultivated at Colomborquídeas, 6 Apr. 1988, *C. Luer 13051* (MO). **Valle del Cauca**: Saladito, near Cali, alt. 1700 m, *H. Schmidt-Mumm s.n.* (AMES).



Masdevallia caesia, perhaps the most distinct species of the genus, is infrequent and endemic in the southern parts of the Western Cordillera of Colombia. Benedict Roezl first found this fabulous species in company with *Dracula chimaera* (Rchb.f.) Luer. In his article describing the account published in *L'Orchidophile*, Roezl described the pendent habit with the large, bluish-green leaves, and compared the plant to a species of *Anthurium*, and the color of the leaves to *Selaginella caesia*. He aptly described the color as "blue-metallic." Although the article is brief without a description of the flower, there can be no doubt about the species of *Masdevallia* in hand. Although Roezl mentioned that a few of the plants exported to Europe survived, apparently no type-specimen was deposited in an herbarium.

From a collection by Consul Lehmann cultivated at the Royal Botanic Garden in Glasnevin, Ireland, Rolfe described the species in 1900 as *Masdevallia deorsa*. *Deorsum* is an adverb meaning "downward" and cannot be declined. He failed to mention the color of the leaves. The binomial was corrected in 1901 to *Masdevallia deorsum* in Curtis' *Botanical Magazine*, plate 7766.

Also from a collection by Lehmann this species was described by Kränzlin in 1925 as *Masdevallia metallica*. This time the unique color of the leaves was reflected in the name. Because the specimen had been mounted on the herbarium sheet with the leaves erect, the remarkable pendent feature was not noted.

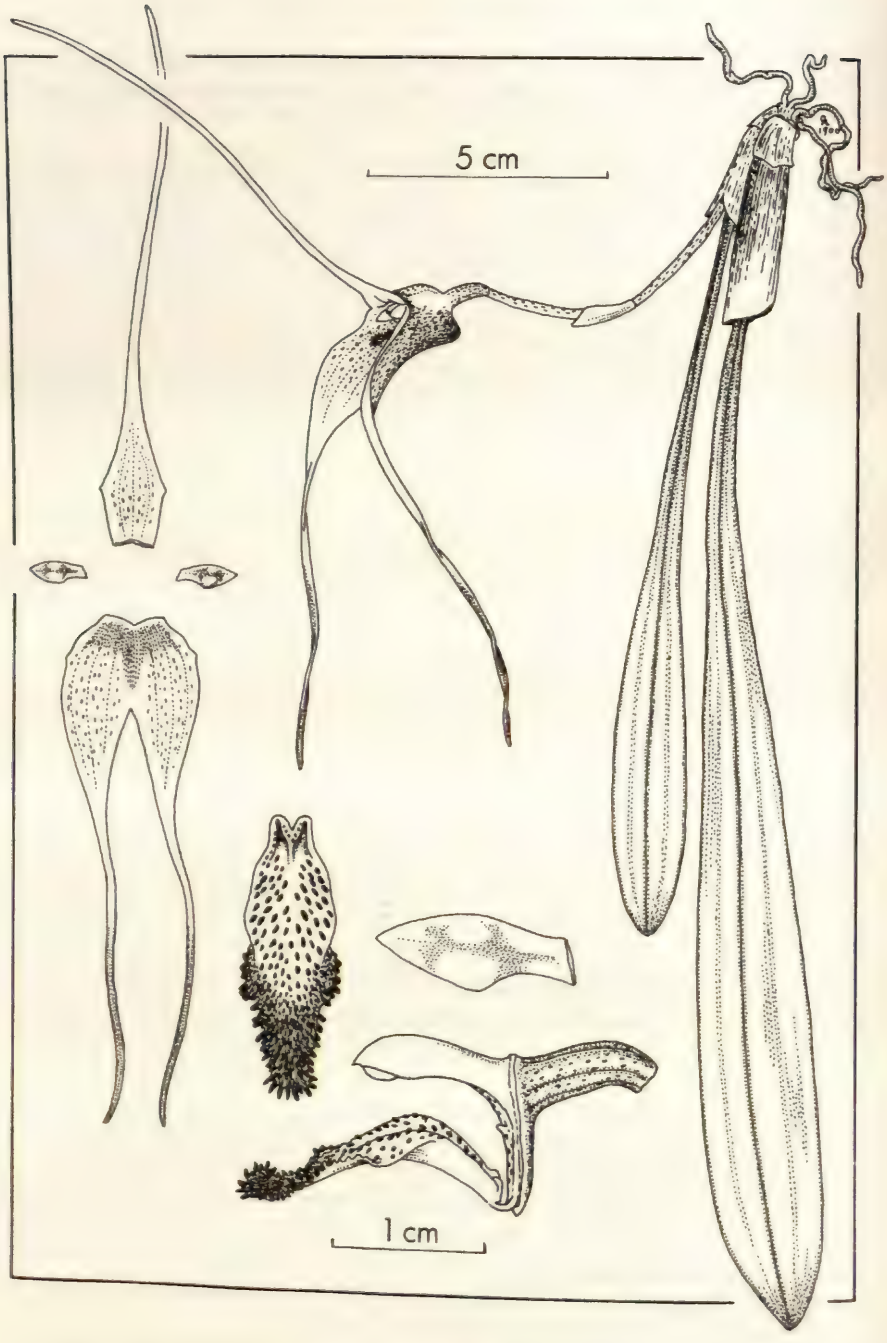


Plate 141. Masdevallia caesia

Masdevallia campyloglossa Rchb. f., Gard. Chron. n.s., 10: 588, 1878.

Ety.: From the Greek *campyloglossa*, "a bent tongue," referring to the arcuate lip.

Syn.: *Masdevallia heterotepala* Rchb. f., Flora 69: 561, 1886.
Ety.: From the Greek *heterotepalon*, "a different tepal (petal)," referring to the petals.

Syn.: *Masdevallia ortgiesiana* hort. ex Rolfe, Orchid Rev. 3: 48, 1895.
Ety.: Named in honor of Herr Ortgies of Zürich who cultivated this species.

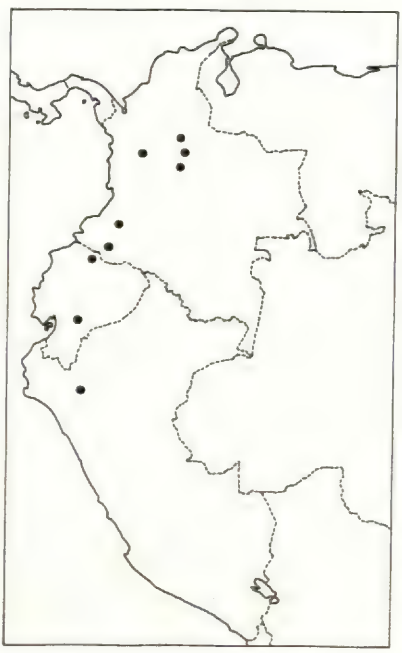
Syn.: *Masdevallia dermatantha* Kraenzl., Repert. Spec. Nov. Regni Veg. 17: 426, 1921.
Ety.: From the Greek *dermatanthos*, "a skinlike flower," referring to a quality of the sepals.

Syn.: *Masdevallia sarcophylla* Kraenzl., Bull. Misc. Inform. 100, 1925.
Ety.: From the Greek *sarcophyllon*, "a fleshy leaf," referring to the coriaceous leaf.

Syn.: *Masdevallia fertilis* Kraenzl., Bull. Misc. Inform. 108, 1925.
Ety.: From the Latin *fertilis*, "fertile," referring to the capsules on the specimen examined.

Syn.: *Masdevallia campyloglossa* subsp. *ortgiesiana* (Rolfe) Luer, Lindleyana 3: 21, 1988.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, often blackish, 1.5-5 cm long, enclosed by 2-3 loose, tubular sheaths, often spotted with purple. **Leaf** erect, coriaceous, indistinctly petiolate, 4-18 cm long including the petiole 1.5-4.5 cm long, the blade narrowly elliptical, acute to subacute, 0.8-2.3 cm wide, gradually narrowed below to the base. **Inflorescence** a single flower borne by a slender, suberect, ascending or descending peduncle, 3-7 cm long, dotted with purple, with a bract near the base, from low on the ramicaul; floral bract tubular, 5-12 mm long; pedicel dotted with purple, 17-30 mm long; ovary dotted with purple, often blackish, 4-7 mm long; **sepals** translucent white or greenish white, dotted with red or purple along the veins and sometimes between the veins, ovate with acute, often lightly acuminate apices, 11-22 mm long, 6-10 mm wide, the dorsal sepal connate to the lateral sepals for 3-5 mm to form a broad sepaline tube, the lateral sepals connate 2.5-4 mm, forming a mentum with the column-foot; **petals** white, dotted with purple along the midvein, obovate to spathulate, 8-11 mm long, 3-4 mm wide, the apex obtuse to rounded with a small apiculum, the labellar half lightly thickened or callous in the apical two-thirds with the margin broadly rounded, the basal third subunguiculate; **lip** white to cream-colored usually with 3 purple stripes, ovate to oblong, rigid, cartilaginous, usually arcuate, the obtuse apex verrucose with erose margins, the disc channeled, the base truncate to subcordate, inflexibly connate on the end to the column-foot; **column** greenish white, semiterete, 4-6 mm long, the foot 4-5 mm long with a stout, incurved extension.



COLOMBIA: without collection data, cultivated 17 June 1878, by *Veitch 47* (Holotype: W); without locality, *F.C. Lehmann 3655* (holotype of *M. heterotepala*: W); without locality or collector, cultivated in Zurich by *Herr Ortgies s.n.* (holotype of *M. ortgiesiana*: W). **Antioquia**: "Medellín," *G. Wallis 271* (W); Río Chico between Santa Rosa and Yarumal, alt. 2200-2600 m, *F.C. Lehmann 7037* (holotype of *M. fertilis*: K; isotypes: BR, HBG); "Antioquia," alt. 2000-2500 m, *F.C. Lehmann 7038* (AMES); "Medellín," *G. Wallis 271* (W); near San Clemente, collected Apr. 1982, cultivated at Colomborquídeas 29 Apr. 1984 *C. Luer, R. Escobar et al. 11308* (MO). **Cauca**: Río Huangobio above Popayán, alt. 1700-1800 m, *F.C. Lehmann 10041* (holotype of *M. sarcophylla*: K); above Anserma Vieja, near Guatica and El Arraganal, alt. 1600-2000 m, 26 Oct. 1883, as "M. striatella," *F.C. Lehmann 3276* (AMES, BM, BR, G, K, NY); Alto de Paizú near Marmata, alt. 1800 m, 7 Oct. 1883, *F.C. Lehmann 4128* (G). **Cundinamarca**: Aguadita, betw San Miguel and Fusagasuga, alt. 1800 m, 8 June 1941, *J. Renz 3584* (BAS); Soacha, Corregimiento de Granada, alt. 2200 m, 5 Aug. 1947, *M. Schneider 394* (AMES); San Miguel near Sibaté, alt. 2800 m, 11 Oct. 1948, *M. Schneider 395* (S); Santandercito, May 1972, *P. Ortiz 4201* (COL). **Santander**: near Virolín, collected May 1982, cultivated at Colomborquídeas 29 Apr. 1984, *C. Luer, R. Escobar et al. 10037* (MO). **Putu-**

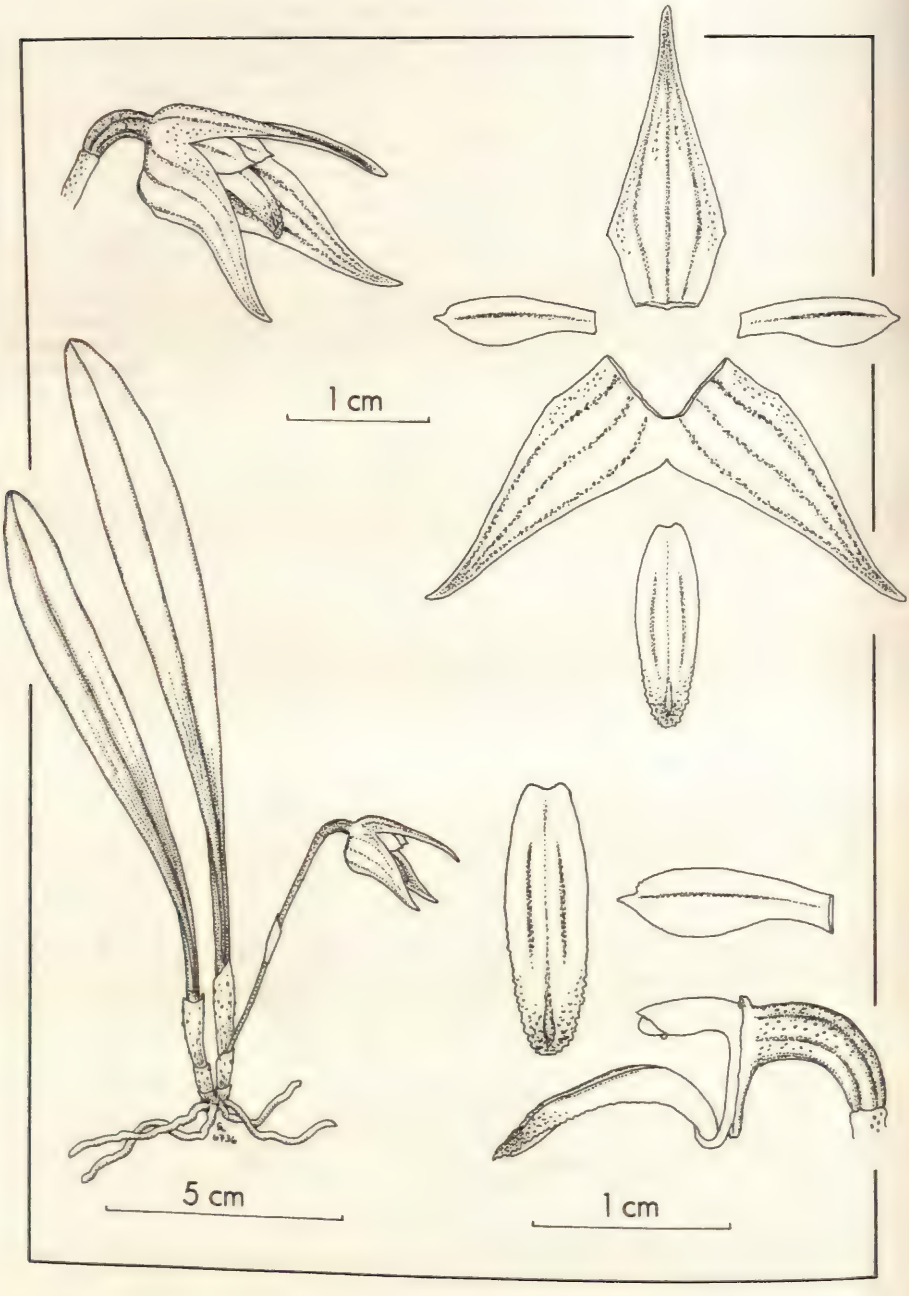


Plate 142. Masdevallia campyloglossa

mayo: Santiago, alt. 2200 m, Nov. 1979, *P. Ortiz 978* (COL). Without collection data: painting of *M. campyloglossa* by Woolward, tab. 12, 1896 (holotype of *M. dermatantha*).
ECUADOR: **Carchi**: epiphytic east of El Carmelo, alt. 2600 m, collected by A. Andreetta & A. Hirtz, cultivated in Cuenca, 1 Nov. 1982, *C. Luer 8788A* (SEL). **Morona-Santiago**: epiphytic in forest near Río Calagrás, alt. 1500 m, collected by A. Andreetta, cultivated in Cuenca, 7 Oct. 1979, *C. Luer 4695* (SEL).
PERU: Dept. of Amazonas: near Pomacochas, alt. 2000 m, Aug. 1978, cultivated in München, *W. Königer, H. Königer, B. Würstle & J. Meza K5b* (K, M, MO, SEL, USM, W, Herb. H. Königer), C. Luer illustr. 5258.

This species is frequent in all three cordilleras of Colombia, becoming infrequent in Ecuador and Peru. It is variable in size vegetatively and florally, and also in the shapes of the petals and lip, but the variations recognized as species are too similar and intermixed in characters to be maintained. The peduncle with the solitary, whitish, tailless flower speckled with purple may descend or ascend. The petals are toothless, and the large, simple lip is more or less arcuate.

When Rolfe named a plant cultivated at Glasnevin for Herr Ortgies of Zürich, he compared it to *M. striatella* Rchb.f. (see *Systematics of Masdevallia, Part One*).

Disbelieving that the plants described by Veitch (Man. Orch. Pl. 5: 27) and painted by Woolward (Monograph of the Genus *Masdevallia*) were the same as the specimen described by Reichenbach as *M. campyloglossa*, Kränzlin described *M. dermatantha*, basing his description upon Woolward's painting and cultivated material. An annotation label for *M. campyloglossa* in his handwriting is attached to *Lehmann 7039* at Kew, a collection of *M. platyglossa*.

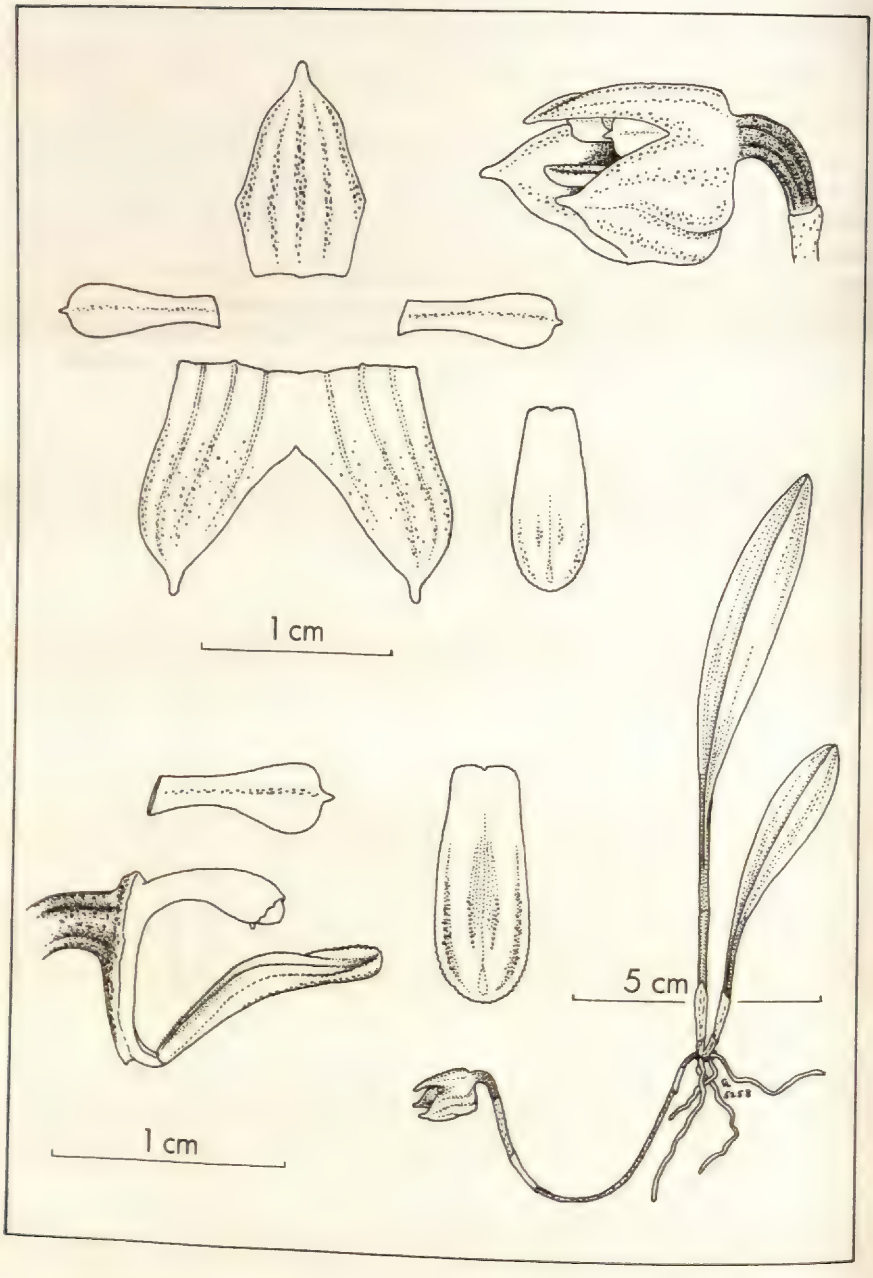


Plate 143. Masdevallia campyloglossa

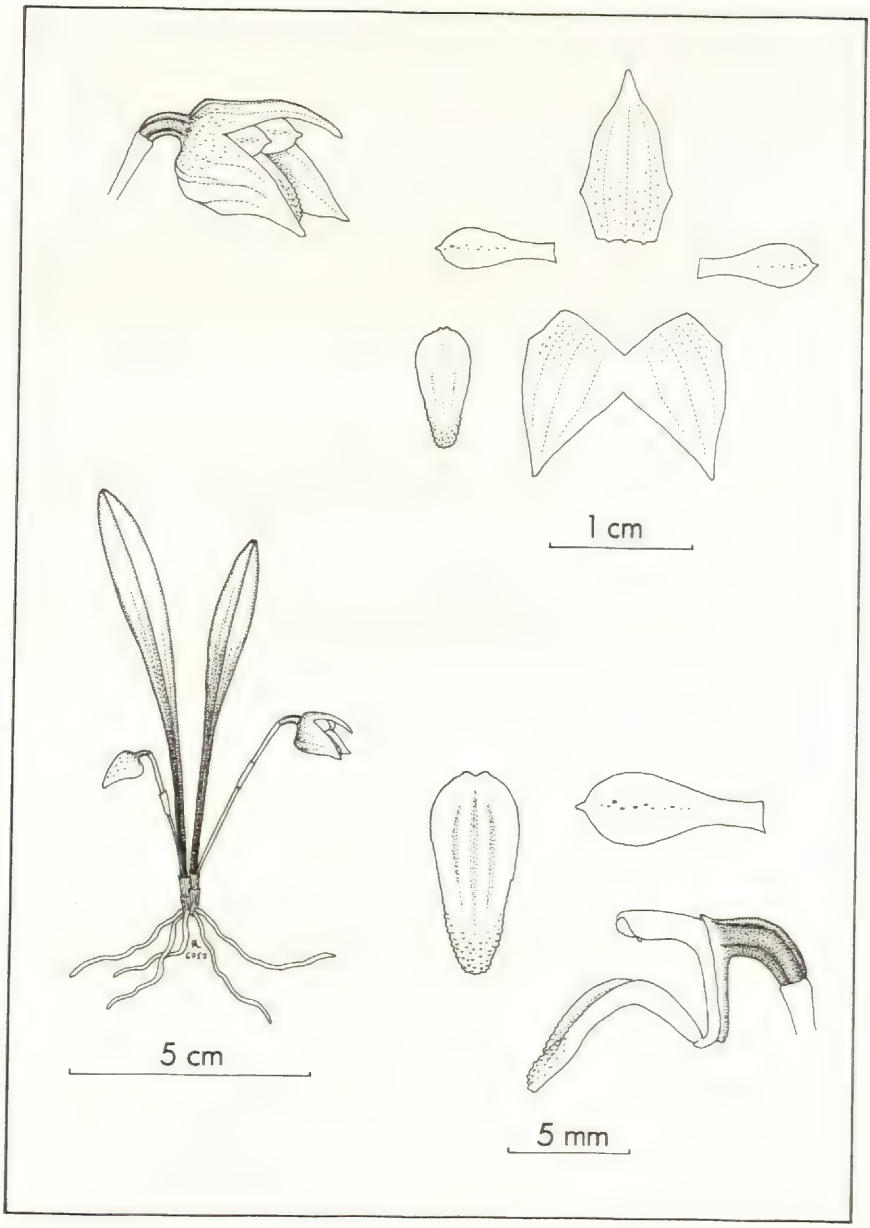


Plate 144. Masdevallia campyloglossa

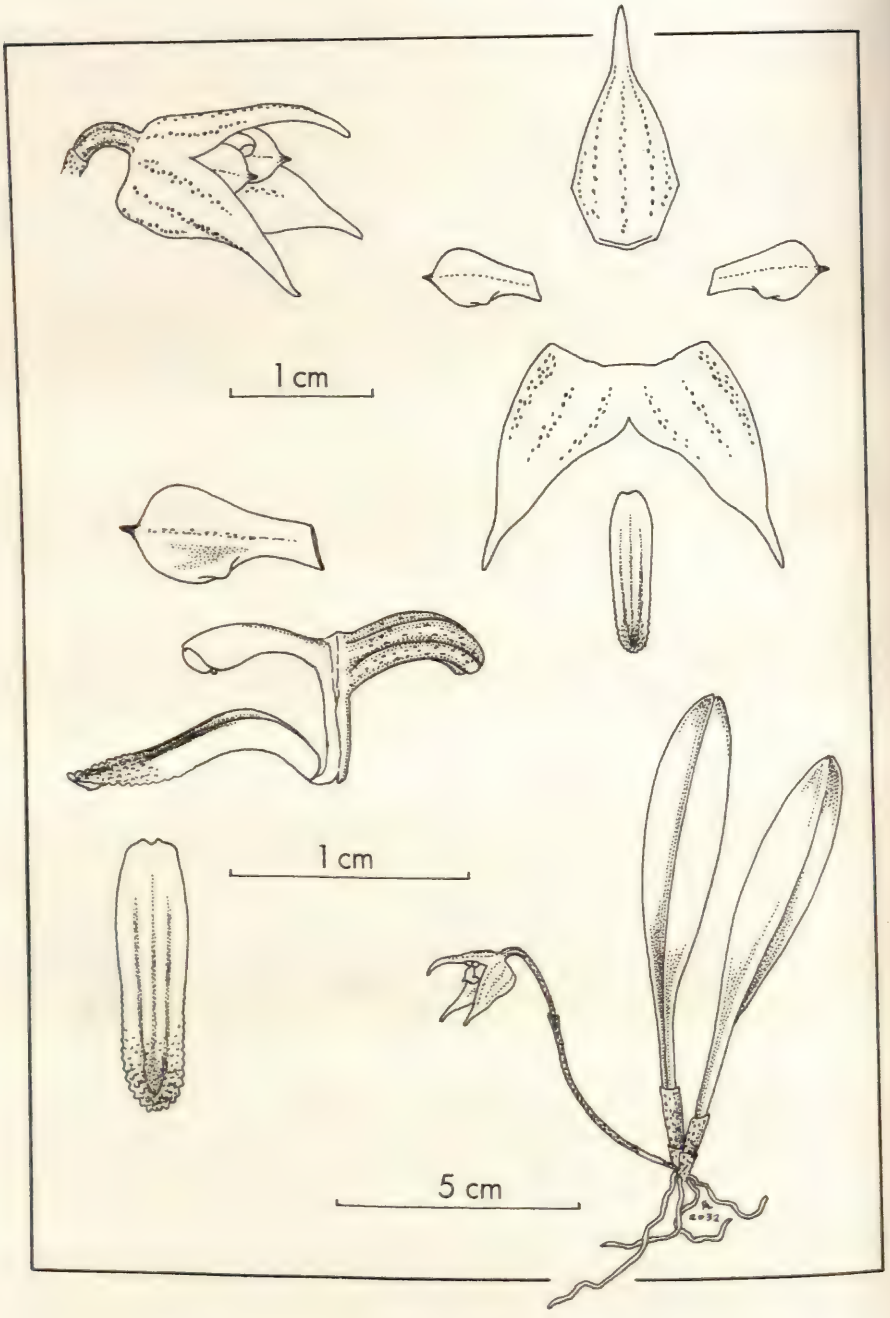


Plate 145. Masdevallia campyloglossa

Masdevallia civilis Rchb.f. & Warsz., Bonplandia 2: 115, 1854.

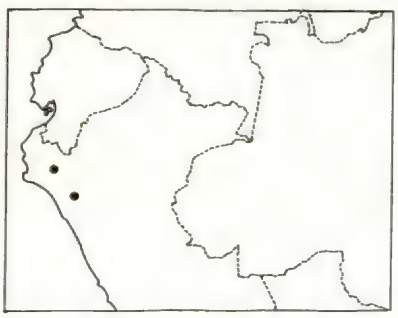
Ety.: From the Latin *civilis*, "civilian," in allusion to the drab flowers in contrast to the bright red flowers (the color of military jackets) of *M. militaris*, which was published simultaneously.

Syn.: *Masdevallia aequiloba* Regel, Gartenflora 9: 82, t. 285, 1860.

Ety.: From the Latin *aequilobus*, "equal-lobed," referring to the flower.

Plant medium in size, terrestrial or lithophytic, caespitose; roots coarse. Ramicauls erect, stout, 2-6 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** dull green, erect to suberect, thickly coriaceous to succulent, narrowly elliptical-linear, obtuse, 6-13 cm long, 0.9-1.3 cm wide, gradually narrowed below into an indistinct, sulcate, subpetiolate or sessile base. **Inflorescence** a solitary, fleshy, malodorous flower, borne by a stout, suberect peduncle, 1.5-2.5 cm long, suffused with purple, with a bract at the base, from low on the ramicaul; floral bract tubular, 13-18 mm long; pedicel 15-18 mm long; ovary 5 mm long; **sepals** dull yellow-green, dotted and mottled with dull purple, thick, fleshy, glabrous externally, minutely verrucose-pubescent within, the blade of the dorsal sepal oblong, 27 mm long, 11 mm wide, connate to the lateral sepals for 22 mm to form a cylindrical, slightly constricted, sepaline tube, the apex triangular, subacute, contracted into a slender, erect, yellow-green tail 7-14 mm long, the lateral sepals connate 20 mm into an oblong, bifid lamina 25 mm long, 15 mm wide unexpanded, concave basally and and forming a deep mentum with the column-foot, the apices triangular, subacute, contracted into slender tails 5-12 mm long; **petals** white, marked with red-purple, elliptical-oblong, 10 mm long, 4 mm wide, with the apex obtuse, apiculate, both halves callous, broadly and obtusely angled near the middle; **lip** pinkish white, spotted with purple, oblong-obovate, 12 mm long, 6 mm wide, the disc verrucose above the middle with a pair of low, converging calli, the apex broadly rounded, minutely denticulate, the base obtuse, with small nectariferous recesses within elevated margins, hinged on the end; **column** white, suffused with rose, semiterete, 8.5 mm long, with the foot nearly as long, with an incurved extension.

PERU: "sources of the Marañon," May 1853, *J.R. von Warszewicz s.n.* (Holotype: W); "northern Peru," *B. Roezl s.n.* (W). **Piura**: terrestrial on rocky slopes west of Huancabamba, alt. 2750 m, Aug. 1980, *C. Luer, J. Luer, W. Königer, H. Königer & M. Arias 2926* (SEL); same collection, cultivated by W. Königer in München, 25 Apr. 1988, *C. Luer 13303* (MO); terrestrial along road up from Canchaque, alt. 3100 m, 23 Feb. 1988, *D. Bennett & A. Bennett 4277* (MO); near Ayabaca, cultivated in Lima by V. Vizquerra, 29 Dec. 1987, *D. Bennett 3546* (MO). **La Libertad**: Sánchez Carrion, westnorthwest of Huamachuco, alt. 3100-3500 m, 8 Jan. 1983, *M. Dillon, U. Molau & P. Matekaitis 2818* (AMES, F).



This species was among a large shipment of mixed plants sent to England by Warszewicz in 1853 for sale. Apparently, the flowers of these plants varied in color and shape. A yellowish flower that was more or less broadly cylindrical in shape led to the catalogue entry of *M. rufolutea*. From the same lot a more bulbous flower, purplish below the middle, was described the following year by Reichenbach as *M. civilis*. The latter was correctly illustrated and identified in Curtis' *Botanical Magazine* (t. 5476), but it appears that Miss Woolward's painting in her monograph is that of *M. picea* (*M. rufolutea*).

The yellowish flower alluded to as *M. rufolutea* was illustrated by Reichenbach, and the illustration is included on the type-sheet of *M. civilis*. It is probable that it is a common color-form of *M. picea*, but proof is lacking. Regardless, the name *rufolutea* is a *nomen nudum*.

Masdevallia civilis is apparently endemic in northern Peru where it grows terrestrially on semi-arid, grassy, rocky slopes fully exposed to the extremes of heat in the midday tropical sun, and chilly nights at an altitude of over 2700 meters above sea level. The rigid, semiterete leaves reflect the habitat, similar to that of *M. bonplandii, M. coriacea*, and *M. rigens*. The fleshy, short-tailed, more or less bluish-tinged flower is borne by a short peduncle. The broad, sepaline tube is constricted above the middle and dilated above the base with a broad, deep mentum.

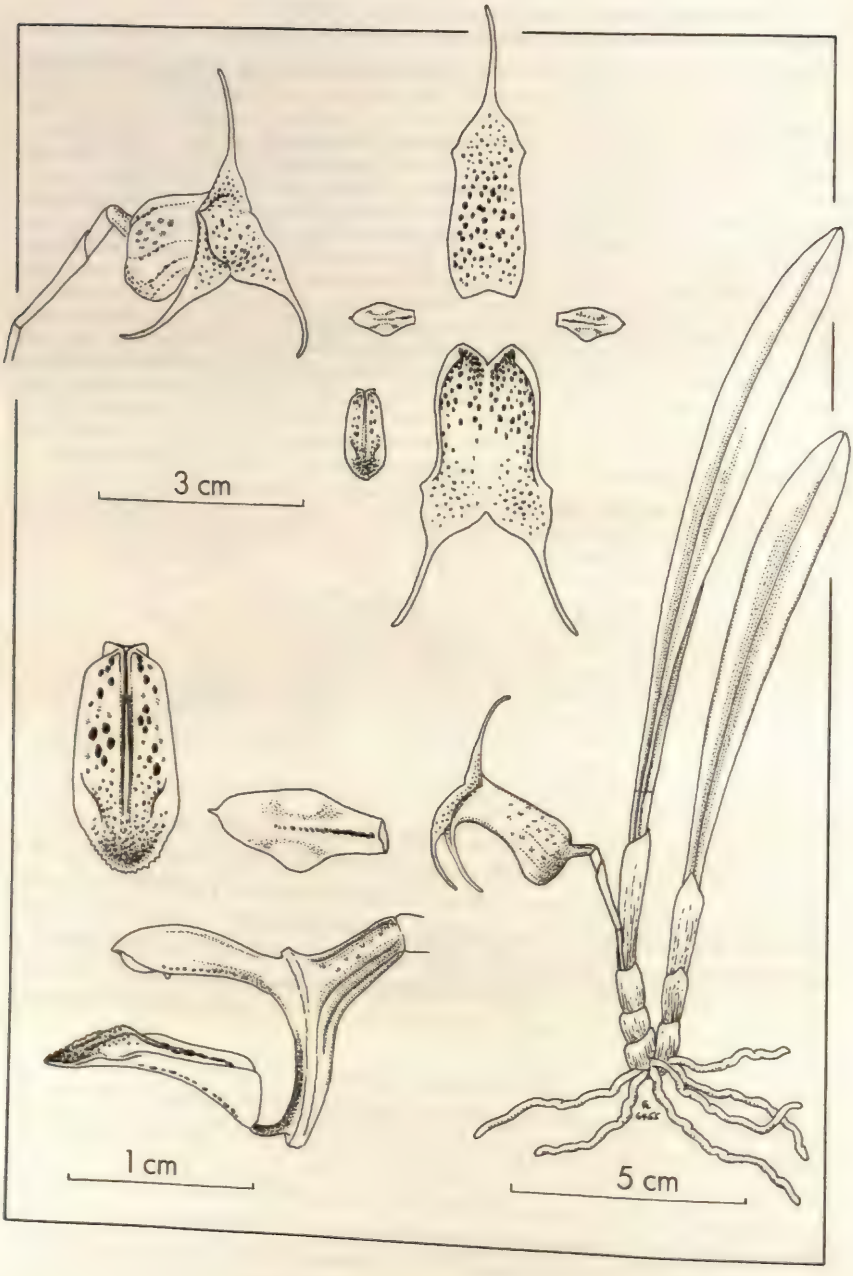


Plate 146. Masdevallia civilis

Masdevallia colossus Luer, Phytologia 39: 193, 1978.

Ety.: From the Latin *colossus*, "a gigantic statue of antiquity," in allusion to the size of the flower.

Plant large, epiphytic, caespitose; roots coarse. Ramicauls stout, erect to suberect, 4-6 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect to suberect, thickly coriaceous, 10-18 cm long including a petiole about 2 cm long, the blade elliptical, obtuse to rounded, 2.5-4 cm wide, cuneate below into the channeled petiole. **Inflorescence** a solitary, malodorous flower borne by a suberect peduncle 4-11 cm long, with a bract near the base, from low on the ramicaul; floral bract 2-3 cm long; pedicel stout, 4-6 cm long; ovary 10-12 mm long; **sepals** thick, fleshy, yellow-green, dotted with brown, glabrous externally, minutely pubescent within, the dorsal sepal ovate, 25-35 mm long, 16 mm wide, connate 12-13 mm to the lateral sepals to form a broad, cylindrical tube, the free portion triangular, the acute apex contracted into a slender, brown tail 6-7 cm long, the lateral sepals ovate, oblique, 35-40 mm long, 13-15 mm wide, connate 13 mm, the acute apices contracted into tails similar to that of the dorsal sepal; **petals** light yellow with purple midvein, more or less oblong, acute, 12 mm long, 3-3.5 mm wide, the labellar margin with an obtuse, callous angle above the middle; **lip** thick, cartilaginous, greenish, dotted with dark purple-brown, oblong, 18 mm long, 6-7 mm wide, the obtuse apex obscurely trilobed, verrucose, dark purple-brown, the base subcordate with a pair of shallow "nectaries," hinged beneath; **column** light green, semiterete, 10-11 mm long, the foot 8 mm long, with an incurved extension.

PERU: **Amazonas**: Molinopampa, collected by J. Meza, cultivated by D. Richardson at Greentree, Manhasset, NY, 24 Nov. 1977, *C. Luer 2239* (Holotype: SEL); purchased by D. Welisch from J. Meza in 1974, cultivated in San Francisco, CA, 12 July 1978, *C. Luer 2929* (SEL); Molinopampa, alt. 2200 m, Aug. 1978, *W. Königer, H. Königer, B. Würstle & J. Meza K-5a* (K, M, SEL, USM, W, Herb. H. Königer).
ECUADOR: **Zamora-Chinchipe**: epiphytic in cloud forest above Valladolid, alt. 1700 m, Nov. 1979, collected by W. Teague, cultivated, 6 Dec. 1979, *C. Luer 4809* (SEL); between Loja and Zamora, collected Jan. 1992, cultivated in Bristol, CT, by *P. Jesup s.n.* (MO), C. Luer illustr. 19193.

This large-flowered species was described from a Peruvian collection by Jorge Meza cultivated by Don Richardson at Greentree, Manhasset, NY. Nearly identical plants that resemble a gigantic *M. fractiflexa*, with which it is sympatric, occur in southern Ecuador.

The species is characterized by large, thickly coriaceous leaves and a huge, fleshy, light green flower borne by a stout pedicel and peduncle. The sepals, flecked with purple, especially along the veins, are connate into a broad, cylindrical tube, beyond which the sepals become narrowly triangular and attenuated into elongated tails. The petals are obtusely angled on the lower margin. The lip is large and verrucose at the tricallous apex.

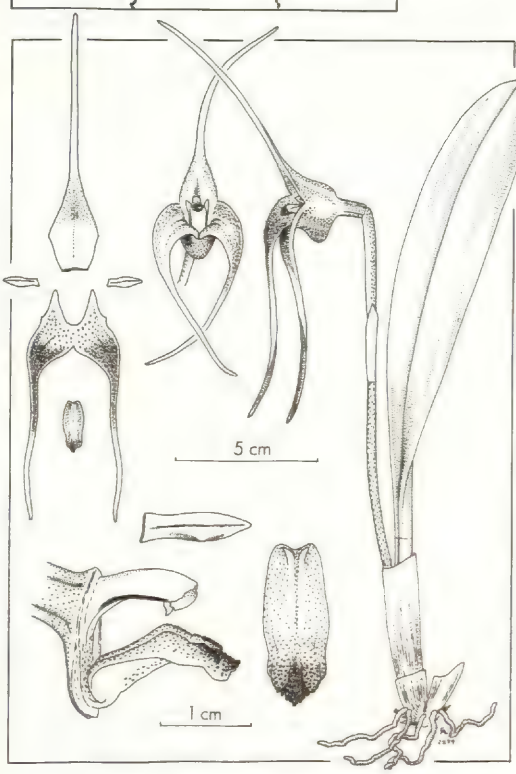


Plate 147. Masdevallia colossus

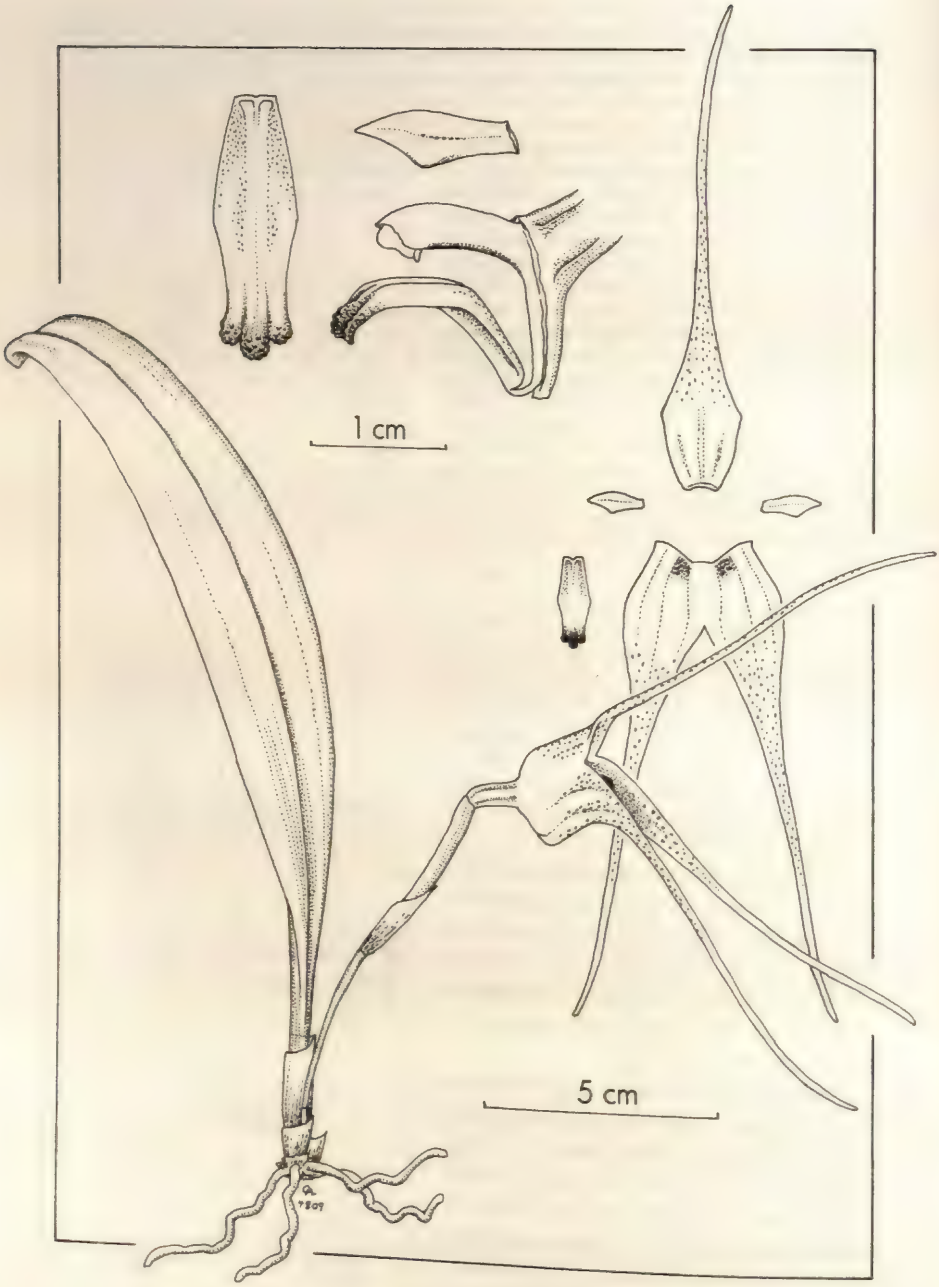


Plate 148. Masdevallia colossus

Masdevallia coriacea Lindl., Ann. Mag. Nat. Hist. 15: 257, 1845.

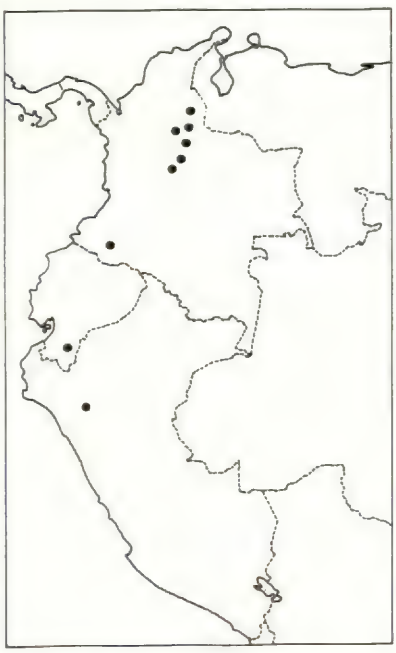
Ety.: From the Latin *coriaceous*, "leathery," in reference to the thickly coriaceous leaves.

Syn.: *Masdevallia ochracea* Burbidge, Gard. Chron. 1421, 1871, nomen nudum.
Ety.: From the Latin *ochraceus*, "ochre-yellow," referring to the color of the flower.

Syn.: *Masdevallia bruckmuelleri* Lind. & André, Linden Catalogue 90, 1873.
Ety.: Named in honor of Herr Bruckmüller who collected the plants.

Syn.: *Masdevallia bogotensis* hort. ex Gentil, Pl. Cult. Serres Jard. Bot. Brux. 118, 1907, nomen.
Ety.: Named for the city of Bogotá, near the site of collection.

Plant medium in size to large, terrestrial, rarely epiphytic, densely caespitose; roots fleshy, coarse. Ramicauls stout, erect, 4-8 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thickly coriaceous, narrowly obovate, obtuse, 10-20 cm long including the petiole 2-6 cm long, 1.5-2.5 cm wide, narrowly cuneate below into the indistinct petiole. **Inflorescence** a solitary flower borne by a stout, suberect to erect peduncle 10-24 cm long, more or less spotted with purple, with a bract near the base, from low on the ramicaul; floral bract 1.5-2.5 cm long; pedicel 2.5-5.5 cm long; ovary 9-10 mm long; **sepals** rigidly fleshy, minutely pubescent within, cream-colored and dotted with purple along the veins, the blade of the dorsal sepal ovate, 20 mm long, 17 mm wide, connate 13 mm to the lateral sepals to form a broad, cylindrical, sepaline tube, the apex subacute, contracted into a thick, greenish tail ca. 15 mm long, the lateral sepals ovate, oblique, with acute apices, connate 19 into a bifid lamina, 38 mm long including the thick tails less than 10 mm long, 23 mm wide together; **petals** white with a purple midvein, oblong, subacute to obtuse, 12 mm long, 5 mm wide, the labellar margin thickened, with an obtuse angle between the middle and lower thirds; **lip** greenish, oblong-obovate, thick, 14 mm long, 7 mm wide, shallowly channeled centrally between low, longitudinal calli, the apex obtuse to rounded, verrucose, the base subcordate, hinged beneath; **column** white with purple margins, semiterete, 10 mm long, the foot 8 mm long, with an incurved extension.



COLOMBIA: **Cundinamarca**: "on rocks, near Bogotá, at an elevation of 8,900 ft." 1842, *Th. Hartweg s.n.* (Holotype: K; Isotype W); an epiphyte from the forests of Fusagasuga, alt. 7,200 ft., Dec. 1842, *J. Linden 1281* (BM, BR, G, K); Bogotá, Volador de Fuquena, alt. 8,400 ft., *Karsten s.n.* (LE); without locality, *Purdie 92* (K); Montserrate, near Bogotá, 8 Feb. 1854, *I.F. Holton s.n.* (AMES, G); Sabana de Bogotá, hills of Chapinero, June 1923, *G.H. Pring 216* (MO); Monserrate, east of Bogotá, alt. 3200 m, 26 Nov. 1936, *J. Renz 3599* (BAS); north of Chocontá, alt. 2700 m, 17 Apr. 1955, *J. Renz 8411* (BAS); Fúguene, near Bogotá, alt. 2800 m, June 1858, *J. Triana 519* (P); same locality, 15 Mar. 1867, *L. Uribe 5820* (COL, G); Sabana de Bogotá, near Suba, alt. 2600 m, Apr. 1940, *L. Uribe Uribe 417* (AMES); Macizo de Bogotá, páramo, alt. 3000-3180 m, 25 June 1939, *J. Cuatrecasas 5623* (AMES); between Bogotá and Usaquén, El Chicó, alt. 3000-3100 m, *H. García-Barriga 12117* (AAU, COL); Fosca a Une, alt. 2100-2430 m, 14 July 1962, *H. García-Barriga 17465* (AMES, COL); Quebrada Chicó, terrestrial, alt. 2660 m, 24 Apr. 1982, *C. Luer, J. Luer, R. Escobar, D. Portillo & P. Ortiz 7522* (SEL). **Boyacá**: Páramo de Pisba, alt. 2800-3000 m, 9 May 1937, *J. Renz 3598* (BAS); Quebrada San Pablín, above Guican, alt. 3550 m, 30 May 1982, *C. Luer, R. Escobar & D. Portillo 7985* (AMES, SEL). **Santander**: Vetas, above La Baja, alt. 2900 m, 19-21 May 1982, *C. Luer, R. Escobar & D. Portillo 7879* (AMES, SEL); east of Bucaramanga toward Berlin, alt. 3300 m, 7 May 1984, *C. Luer, J. Luer, R. Escobar & E. Valencia 10171* (MO). **Norte de Santander**; Pamplona, La Baja, alt. 8,600 ft., Jan. 1847, *L. Schlim 1437* (LD); Ocaña, 15 Mar, 1873, *Bruckmüller 44* (W). Represa del Muna, alt. 2800 m, collector unknown, cultivated at Colomborquídeas, 4 Oct. 1977, *C. Luer 1905* (SEL). **Putumayo**: between Laguna La Cocha and Páramo de Tábano, alt. 2800-3000 m, 1 June 1946, *R. E. Schultes & M. Villarreal 7833j* (AMES).

ECUADOR: **Zamora-Chinchipe**: terrestrial in sub-paramo, Nudo de Sabanilla, collected by D. D'Alessandro, cultivated at Vilcabamba, 21 Feb. 1986, *C. Luer 12032* (MO).

PERU: **Cajamarca**: terrestrial above Celendin, alt. 2500 m, collected and cultivated in Putte, Holland, by J. Schoonen, *C. Luer 16966A* (MO).

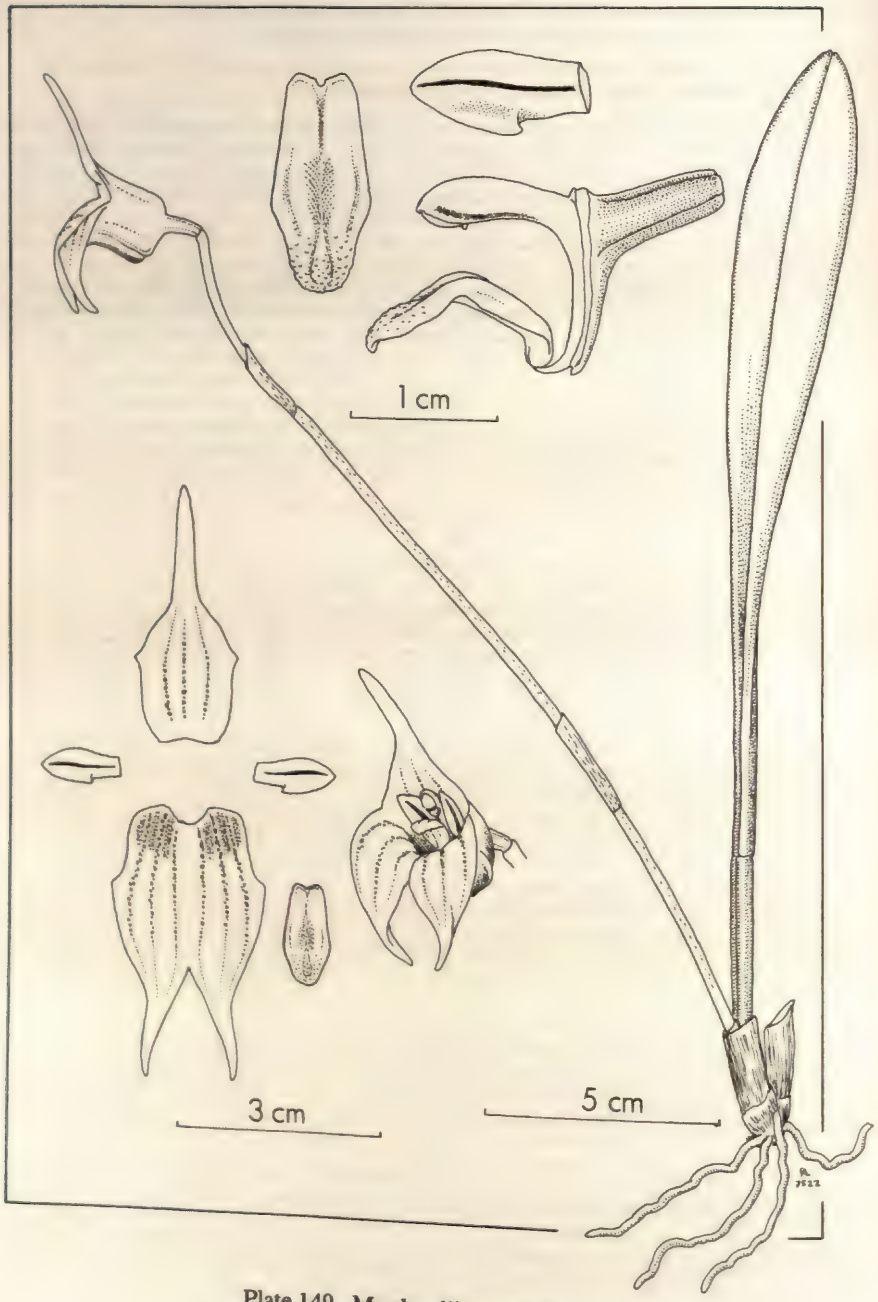


Plate 149. Masdevallia coriacea

This species is a locally frequent, terrestrial herb of grassy paramos of the Eastern Cordillera of Colombia. It was first recorded by both Hartweg and Linden in 1842. Linden noted that it grew epiphytically in a forest near Fusagasuga, but that is an uncommon occurrence.

Typically, the plants are large and robust with a stout peduncle nearly as long as the thickly coriaceous leaves. The large, waxy, pale green flower is dotted with purple along the veins. The sepals are connate into a broad, sepaline tube. The petals are obtusely angled on the labellar margin. The large, thick lip is verrucose at the apex.

A similar but smaller taxon with a much greater distribution has been described by Reichenbach as *M. bonplandii*. The latter, possibly little more than a variation of *M. coriacea*, is distinguished by narrower, semiterete leaves, usually a much shorter peduncle, and smaller flowers often colorfully marked with purple.

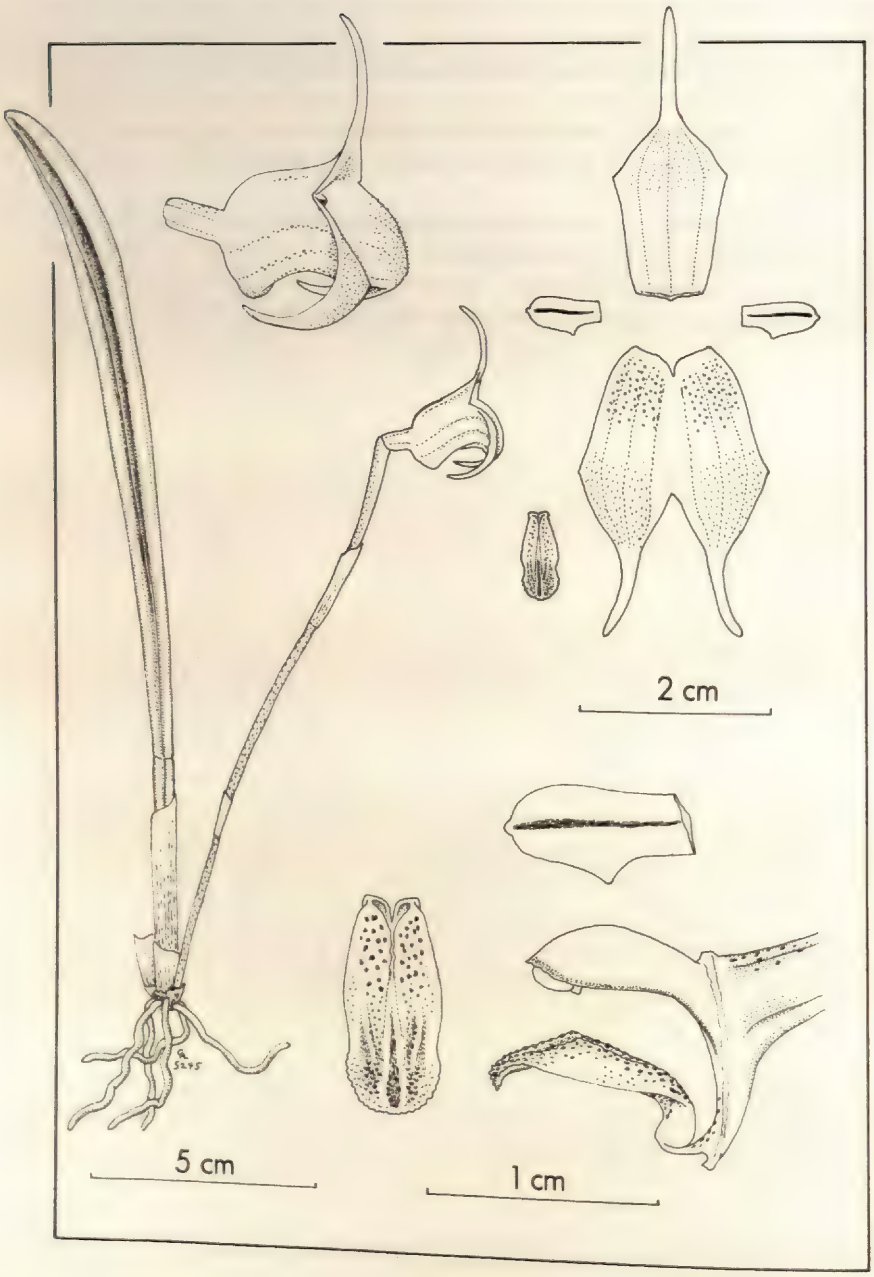


Plate 150. Masdevallia coriacea

Masdevallia elephanticeps Rchb.f. & Warsz., Bonplandia 2: 116, 1854.

Ety.: From the Latin *elephanticeps*, "elephant-headed," in allusion to the immense flower.

Plant large, epiphytic, caespitose; roots coarse. Ramicauls erect, stout, 3-11 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thickly coriaceous, 10-30 cm long including the petiole 3-9 cm long, the blade oblong, obtuse, 2.5-5.5 cm wide, narrowed below into the channeled petiole. **Inflorescence** a huge, solitary, fleshy, foul-smelling flower borne by a stout, erect to suberect peduncle, 4-5.5 cm long, with a bract near the base, from low on the ramicaul; floral bract loose, tubular, 3-3.5 cm long; pedicel stout, 4-6 cm long; ovary 10-12 mm long; **sepals** fleshy, minutely verrucose within, the dorsal sepal yellow-green, the blade broadly ovate, 27-40 mm long, 21-26 mm wide, connate to the lateral sepals for 17-20 mm into a broad, cylindrical, sepaline tube, the free portion triangular, with the acute apex contracted into an erect, thick, yellow tail 3.5-6.5 cm long, the lateral sepals yellow to yellow-green, variously suffused within with red-brown to purple, connate 30-40 mm into a broadly ovate, bifid lamina 40-50 mm long, 32-40 mm wide, connate at the base 15 mm to the column-foot to form a deep mentum, the acute apices gradually narrowed into thick, yellow tails 3-5 cm long; **petals** white with a purple midvein, cartilaginous, elliptical, acute, 14-16 mm long, 5.5-6 mm wide, longitudinally thickened on both halves, with an broadly obtuse angle on the labellar margin above the middle; **lip** dark purple, thick, rigid, oblong-elliptical, 17-20 mm long, 8-10 mm wide, the disc sulcate, verrucose above the middle, the apex rounded, densely spiculate, the base subcordate with nectariferous recesses, hinged on the end; **column** white with purple margins, semiterete, 12-13 mm long, the foot thick, 11-15 mm long with a short, stout, incurved extension.

COLOMBIA: **Norte de Santander**, old province of Ocaña: between Ocaña and Pamplona, alt. 6,500-10,000 ft., 1850, *J.R. von Warszewicz s.n.* (Holotype: W); Ocaña, *Carder s.n.* (W); Ocaña, *Bruckmüller s.n.* (W); without locality, *R. Shuttleworth s.n.* (W); Páramo de Jurisdicciones, alt. 2600-2800 m, collected by R. Mejía, July 1973, cultivated by M. & O. Robledo at La Ceja, 28 Sept. 1977, *C. Luer 1861* (SEL); same area, alt. 3150 m, 30 Apr. 1982, *C. Luer, J. Luer, R. Escobar & D. Portillo 7646* (SEL); Alto de San Francisco, alt. 2900 m, 11 May 1984, *C. Luer, J. Luer, R. Escobar & E. Valencia 10277* (MO).

This giant among the Masdevallias is known only from high-altitude forests of the Eastern Cordillera of Colombia where it was first collected by Warszewicz. Immense clusters of the huge leaves with enormous, yellow and red-brown flowers are still there. Plants reported by Lehmann from Santo Domingo near Medellín in the Central Cordillera are without doubt *M. velifera*. A photograph of *M. elephanticeps* is reproduced on the cover of the *American Orchid Society Bulletin* 42, Sept. 1973.

Later from a different source, Reichenbach stated that he received from Wagener a painting of a huge flower with long, broad tails and a flower preserved in alcohol, neither of which are still present in Reichenbach's herbarium. Assuming the flower to be a thick-tailed variety of *M. elephanticeps*, he described it the same year as var. *pachysepala*. An illustration of *M. elephanticeps* made from Warszewicz's painting was published on Plate 3 in the first volume of *Xenia Orchidaceae* in 1858; and an illustration of var. *pachysepala* from Wagener's painting was published on Plate 74. A painting at K by Lehmann, *t. 125*, of his collection *6507* entitled "Masdevallia megalosoma" most likely represents *M. elephanticeps*.

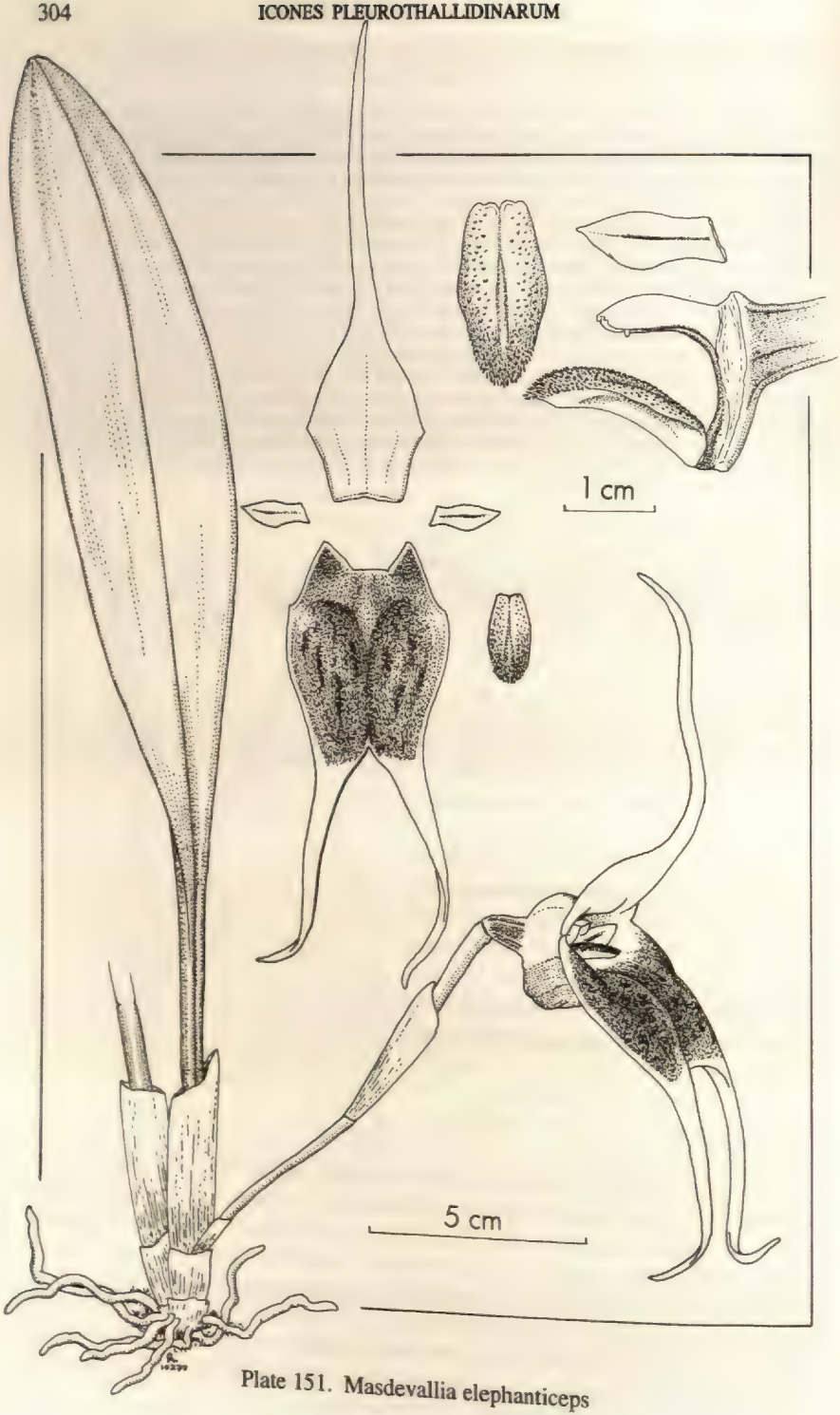


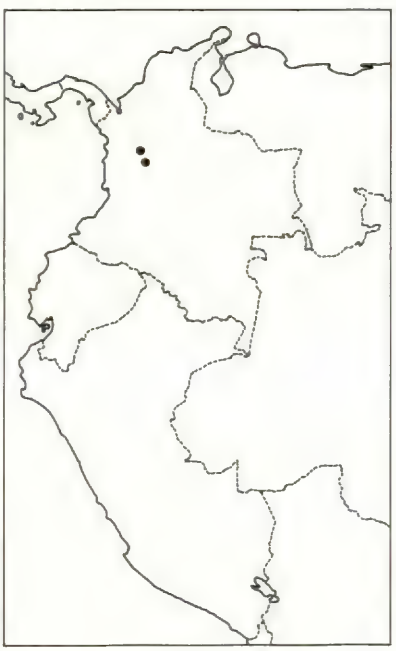
Plate 151. Masdevallia elephanticeps

Masdevallia foetens Luer & Escobar, Orquideología 13: 157, 1979.

Ety.: From the Latin *foetens*, "stinking," referring to the unpleasant odor of the flower.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 1-2 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, narrowly obovate, subacute, 6-12 cm long including the petiole, 1.5-2.1 cm wide, narrowly cuneate below into the channeled petiole, 2-2.5 cm long. **Inflorescence** a solitary, malodorous flower, borne by a stout, erect to suberect peduncle, 1.5-2 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 12-15 mm long; pedicel 10-12 mm long; ovary 6 mm long; **sepals** fleshy, suffused with purple, spotted with purple within, the dorsal sepal narrowly ovate, the blade ca. 20 mm long, 7 mm wide, connate to the lateral sepals for 6 mm into a sepaline tube, the free portion acute, attenuated into a suberect, thick, green tail ca. 5 cm long, the lateral sepals ovate, oblique, ca. 20 mm long, 6 mm wide, connate 5 mm, the free portions deflexed beyond the sepaline tube, acute, attenuate tails similar to the tail of the dorsal sepal; **petals** yellow, marked with purple in 3 rows, oblong, rounded at the apex, 5.5 mm long, 1.5 mm wide, longitudinally shallowly sulcate with the midrib thickened externally; **lip** dark red-purple, thick, oblong-cruciform, obscurely 3-lobed above the middle, 6.5 mm long, 2 mm wide, 3.5 mm wide across the lateral lobes, the lateral lobes curved, obtuse, the apical lobe 1.5 mm long and wide, obtuse, verrucose, with the margins revolute, the base cordate, hinged beneath; **column** white, suffused with red, semiterete, 5 mm long, the foot 4 mm long with a short, incurved extension.

COLOMBIA: **Antioquia**: Carolina, Represa de Miraflores, "Tenche," alt. 1950-2000 m, collected by G. Misas and O. J. Arango, 11 Oct. 1975, cultivated by Arango at La Estrella, *R. Escobar 1072* (Holotype: JAUM); same locality and collectors, 14 June 1975, cultivated by Arango, 25 Sept. 1977, *C. Luer 1842* (SEL); same area, cultivated 20 Apr. 1988, *C. Luer 13278* (MO); Represa de Troneras, Río Guadalupe, alt. 1850-1950 m, 3 Jan. 1976, *G. Misas, O. J. Arango & C. Toro s.n.* (JAUM, SEL); Angustura, "Zulaibar," alt. 1900-2000 m, *P. Alvarez s.n.* (JAUM); above El Retiro, alt. 2400 m, collected by Pacho et al., 9 May 1993, *C. Luer 16732* (MO).



This unusual species is endemic in the Central Cordillera of Colombia where it is occasionally found. Vegetatively it is not distinctive, but the odor of the flowers, very unpleasant to humans, is distinctive, no doubt attracting carrion-seeking flies. The comparatively small, purple-spotted flower with long, thick tails is borne by a short peduncle. The oblong petals are spotted with purple along the three veins. The dark purple lip is three-lobed above the middle with the apex verrucose and obtuse.

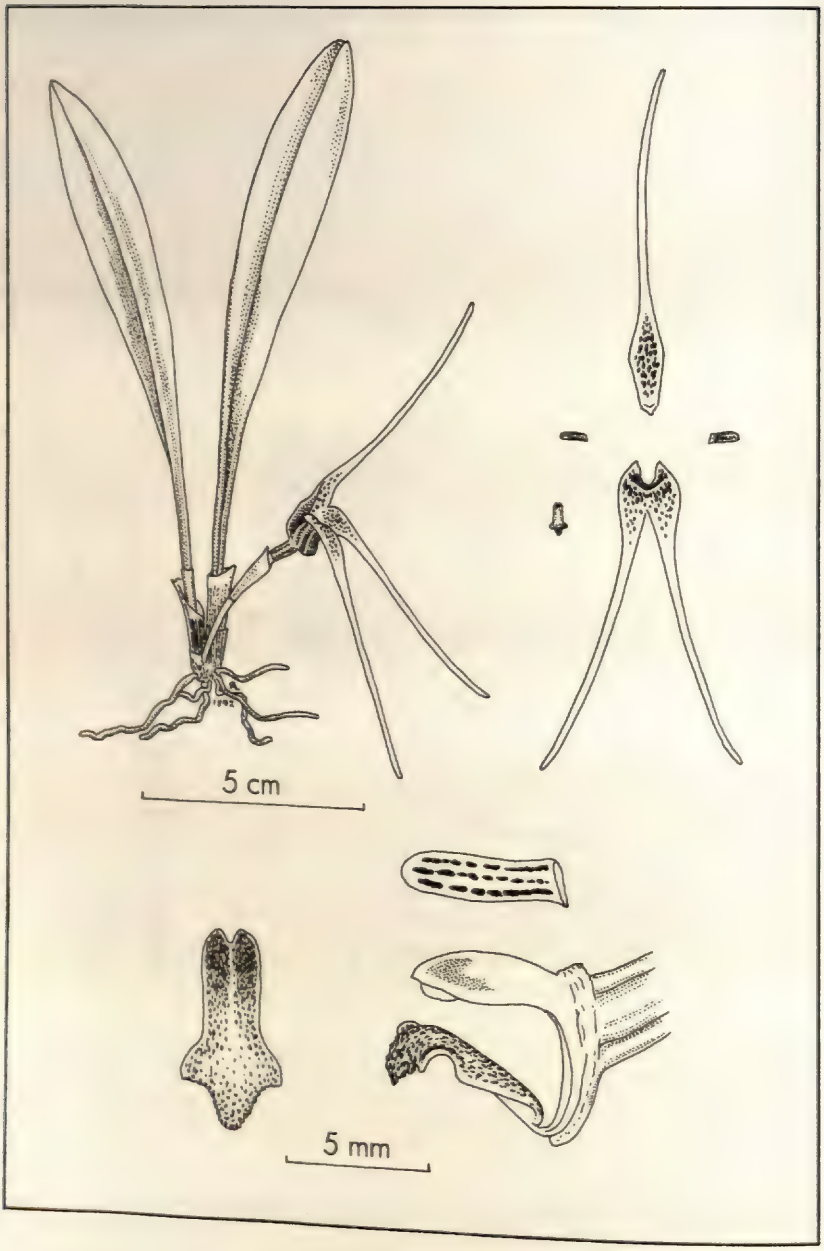


Plate 152. Masdevallia foetens

Masdevallia fractiflexa Lehm. & Kraenzl. in Woolward, The Genus Masdevallia tab. 17, 1896.

Ety.: From the Latin *fractiflexus*, "flexuous, or zigzag," referring to the reflexed tails of the sepals.

Plant medium in size to large, epiphytic, caespitose; roots coarse. Ramicauls stout, erect to suberect, 2-5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect to suberect, thickly coriaceous, 9-18 cm long including a petiole about 2 cm long, the blade elliptical, subacute to obtuse, 1.5-3.5 cm wide, narrowly cuneate below into the channeled petiole. **Inflorescence** a solitary, malodorous flower borne by a suberect peduncle 2-6 cm long, with a bract near the base, from low on the ramicaul; floral bract 1.5-2 cm long; pedicel 3-5 cm long; ovary 7-12 mm long; **sepals** thick, fleshy, light yellow-brown to light olive green, flecked with brown, glabrous externally, minutely pubescent within, the dorsal sepal ovate, 15-20 mm long, 10 mm wide, connate 8-10 mm to the lateral sepals to form a broad, cylindrical tube, the free portion triangular, the acute apex contracted into a slender, brown, commonly reflexed tail 3-6 cm long, the lateral sepals ovate, oblique, 20-25 mm long, 8-9 mm wide, connate 8-10 mm, the acute apices contracted into commonly reflexed tails similar to that of the dorsal sepal; **petals** white to greenish white, more or less oblong, acute, 9-10 mm long, 2-2.5 mm wide, the labellar margin with an obtuse, callous angle above the middle; **lip** thick, cartilaginous, yellow-green, marked with dark purple-brown, oblong, 12-15 mm long, 4-5 mm wide, the obtuse apex obscurely trilobed, verrucose, dark purple-brown, the base subcordate with a pair of shallow "nectaries," hinged beneath; **column** light green, semiterete, 8-9 mm long, the foot 4 mm long, with an incurved extension.

ECUADOR: **Zamora-Chinchipe**: epiphytic in cloud forest between Loja and Zamora, alt. 1800 m, *F.C. Lehmann 10020* (Holotype: K); same area, alt. 1600 m, 18 Nov. 1961, *C.H. Dodson & L.B. Thien 1440* (MO, SEL); same area, B. Malo, cultivated at Tarqui, 5 Feb. 1978, *C. Luer 2460* (SEL); same area, alt. 2000 m, 1997, cultivated in Hasselt, Belgium, by *P. Cloes 200617* (MO). **Morona-Santiago**: forest above Limón, collected by E. Sánchez, cultivated in Cuenca by *A. Andreetta 42* (SEL); Río Calagrás, alt. 1500 m, collected by A. Andreetta and M. Portilla, cultivated at Paute, May 1988, *C. Luer 13663* (MO).

This large species, endemic in southeastern Ecuador, was first collected by Lehmann. The fleshy, yellowish green flower is flecked with brown. Typically, the tails are recurved (not "fractiflex"), and occasionally they point forward. The petals are obtusely angled above the middle of the labellar margin. The large lip is verrucose and tricallous at the apex.

Although not considered small, the flowers of *M. fractiflexa* are much smaller that those of a similar, sympatric plant, treated as an Ecuadorian population of *M. colossus* first described from nearby Peru. The shape, except for size, and color of the sepals of the two taxa are similar, as are the petals and lip as well.

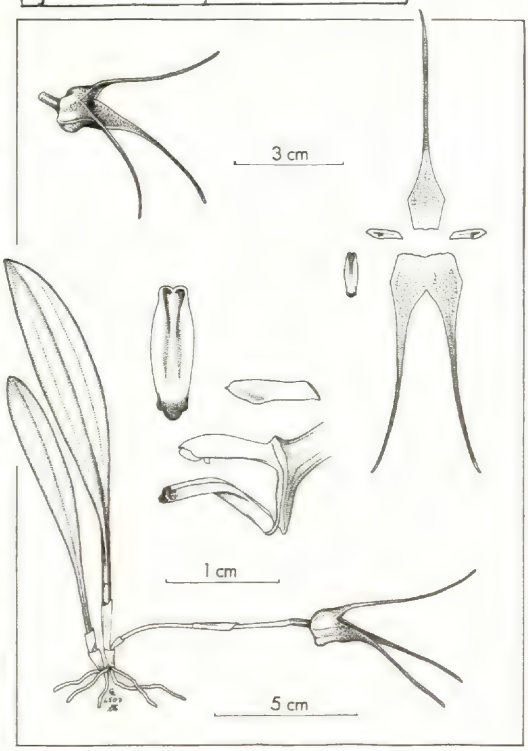


Plate 153. Masdevallia fractiflexa

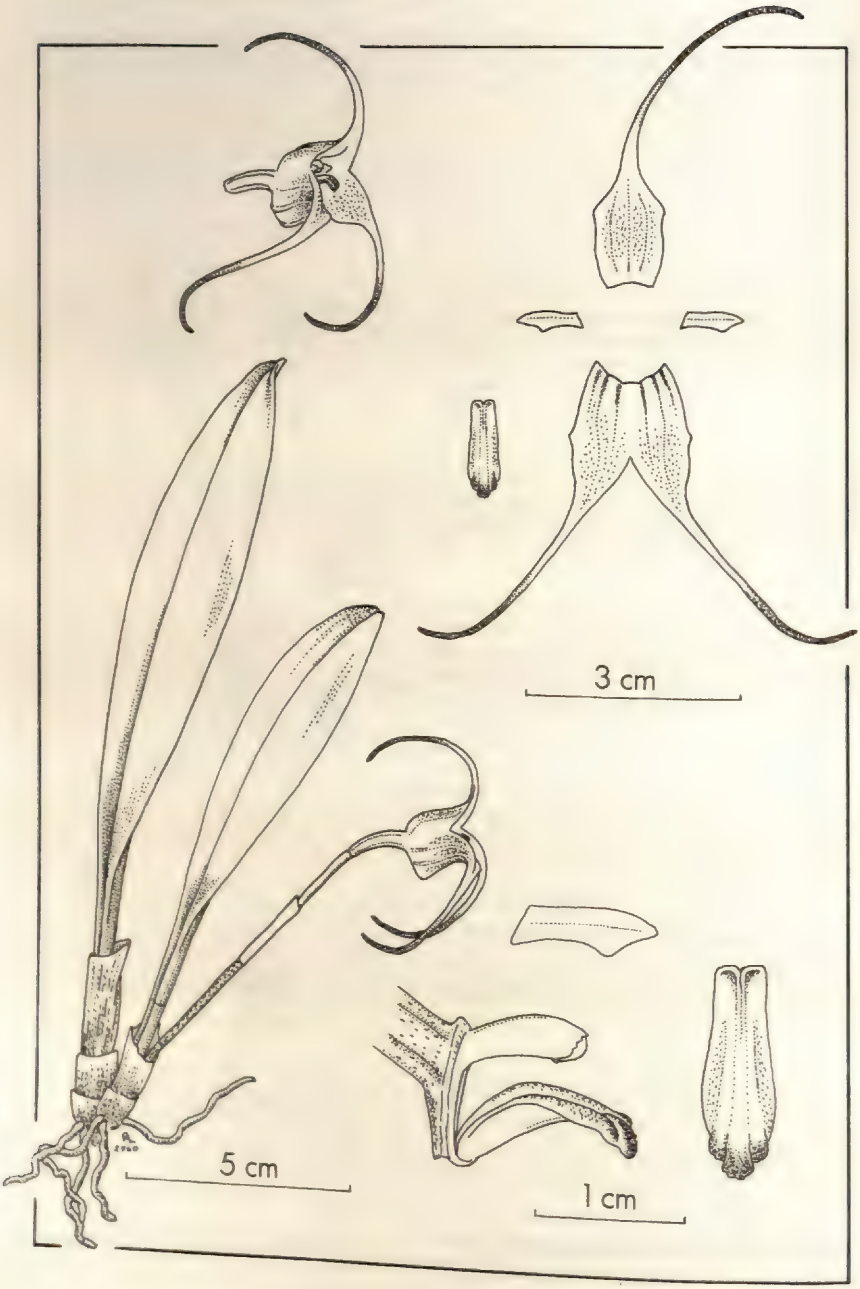


Plate 154. Masdevallia fractiflexa

Masdevallia fragrans Woolward, The Genus *Masdevallia*, t. 18, 1896.

Ety.: From the Latin *fragrans*, "fragrant," referring to the scent of the flower.

Plant large in size, epiphytic, caespitose; roots coarse. Ramicauls erect, stout, 3-8 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thickly coriaceous, petiolate, 8-24 cm long including the petiole 1-5 cm long, the blade elliptical, subacute to obtuse, 2-4 cm wide, cuneate below into the channeled petiole. **Inflorescence** a solitary flower, borne by a stout, suberect peduncle, 2-7 cm long, with a bract at the base, from low on the ramicaul; floral bract tubular, 2-2.5 cm long; pedicel flecked with purple, 2.5-6 cm long; ovary green, 9-10 mm long; **sepals** light yellow to golden yellow, dotted with red-purple along the veins externally, fleshy, glabrous externally, the blade of the dorsal sepal ovate, 25 mm long, 18 mm wide, connate to the lateral sepals for 14 mm to form a broad, sepaline tube, the apex subacute, contracted into a stout, forwardly directed, yellow tail 4 cm long, the lateral sepals ovate, oblique, 38 mm long, connate 28 mm to form a lamina 30 mm wide, forming a broad mentum with the column-foot, the apices subacute, contracted into descending tails 3 cm long, similar to that of the dorsal sepal; **petals** yellow with brown midvein, cartilaginous, elliptical, subunguiculate, acute, 15 mm long, 6 mm wide, both halves thickened, the labellar margin callous, subacutely angled below the middle; **lip** yellow, thick, obovate, 16 mm long, 7.5 mm wide, the apex broadly rounded, verrucose, denticulate, the disc with 3 low, longitudinal calli striped in purple-brown along the veins, the middle callus thickest and verrucose at the apex, the base subcordate, hinged below; **column** yellow with purple margins, semiterete, 10 mm long, the foot dotted with purple, 7 mm long, with an incurved extension.

COLOMBIA: Without collection data, probably collected with *M. elephanticeps* in the old department of Ocaña, alt. 6,000-10,000 ft., purchased from Mr. Bull, cultivated by the Marquess of Lothian, Apr. 1882, *F. Woolward s.n.* (Holotype: BM); probably same source, cultivated at Camberwell, 1895, by *? Measures s.n.* (K); probably same source, cultivated at Burford Lodge, 1895, by *Sir Trevor Lawrence s.n.* (K). **Norte de Santander**: between Abrego and Las Jurisdicciones, Cerro Oroque, alt. 3440-3750 m, 22 May 1969, *H. García-Barriga & R. Jarramillo 19714, 19827, 19830* (AMES, COL); epiphytic in subparamo forest, Páramo de Jurisdicciones, alt. 3150 m, 30 Apr. 1982, *C. Luer, J. Luer, R. Escobar & E. Valencia 7644* (AMES, SEL); same area, alt. 3150 m, 10 May 1984, *C. Luer, J. Luer, R. Escobar & E. Valencia 10241* (MO).

This species was discovered in the orchid collection of the Marquess of Lothian at Newbattle Abbey near Edinburgh, Scotland, by Miss Florence Woolward, who, at that time, was painting portraits of the orchids as they came into flower. Among plants of *M. elephanticeps* collected near Ocaña and imported by Mr. Bull, was this hitherto unknown species. Miss Woolward's painting and description were published in her monograph of the genus in 1896.

The species had not been seen again until it was discovered in 1982 growing in spectacular masses upon low-branching trees below the Páramo de Jurisdicciones in the Eastern Cordillera of Colombia, not far from Ocaña. Accompanying *M. fragrans* was *M. elephanticeps*, but in far fewer numbers.

Masdevallia fragrans is distinguished by the large, thickly coriaceous leaves and a large, golden yellow, fleshy flower borne by a short peduncle. The flower is similar to that of the smaller, usually terrestrial *M. coriacea* Lindl. Miss Woolward noted a delicate fragrance, which is not exactly what we would have called it.

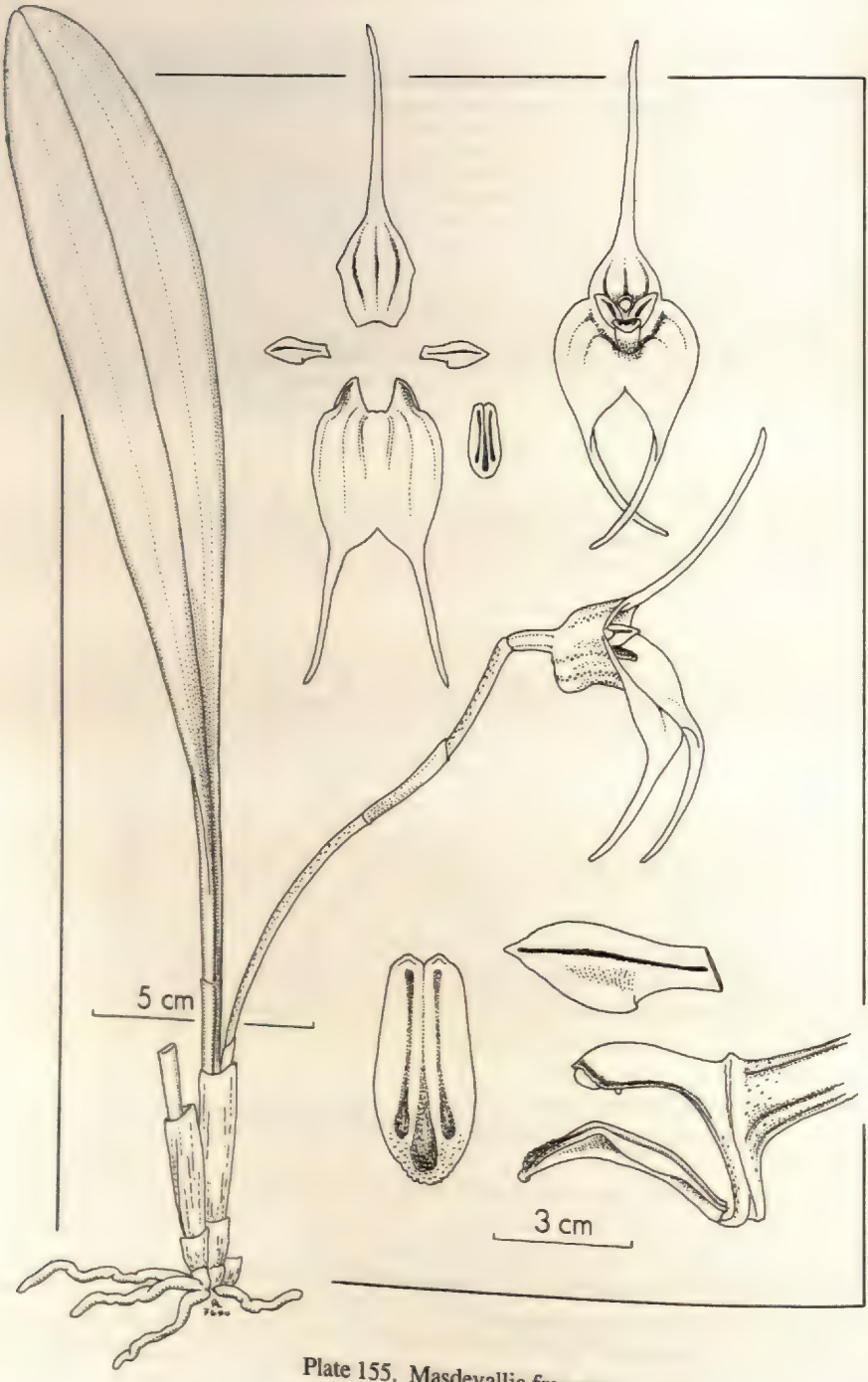


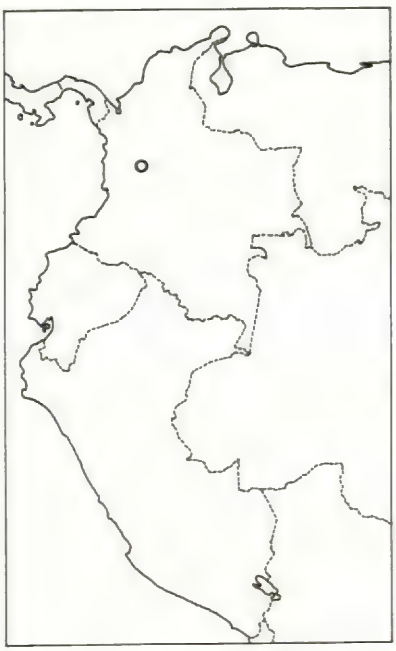
Plate 155. Masdevallia fragrans

Masdevallia gargantua Rchb.f., Gard. Chron. n.s., 6: 516, 1876.

Ety.: Named for the fictitious giant king *Gargantua* from the story of *Gargantua and Pantagruel* by Rabelais.

Plant large, robust, caespitose; roots coarse. Ramicauls stout, erect, 4-9 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thickly coriaceous, 10-20 cm long including an indistinct 2-3 cm long petiole, the blade elliptical-oblong, 2-3.3 cm wide, the apex obtuse to rounded, the base cuneate into the channeled petiole. **Inflorescence** a solitary, large, fleshy flower borne by a suberect peduncle 5-10 cm long, from low on the ramicaul; floral bract tubular, 3 cm long; pedicel 5-6 cm long, speckled with purple; ovary 10-12 mm long; **sepals** thick, fleshy, glabrous externally, microscopically cellular within, the dorsal sepal dull light green, flecked with red-purple along the veins, obovate, the blade ca. 28 mm long, 20 mm wide, 3-veined, connate to the lateral sepals for 17 mm to form a broad, cylindrical tube, the free portion triangular with the obtuse apex contracted into an erect, thick, yellow-green tail 35 mm long, the total length ca. 60 mm long, the lateral sepals similarly flecked along the veins and suffused with red-purple, connate ovate 30 mm into an oblong, bifid lamina 35 mm long, 30 mm wide, the apices acute, contracted into green tails 25-30 mm long; **petals** ivory-colored with a thin purple midvein, oblong, subacute, 14 mm long, 5.5 mm wide, slightly dilated above the base, slightly sulcate centrally between the thickened halves; **lip** heavily and diffusely marked with red-purple on ivory, densely short-spiculate above the middle, thick, rigid, elliptical, 17 mm long, 8 mm wide, the apex broadly rounded, the disc shallowly sulcate medially between thickened halves, the base subcordate, hinged on the end; **column** greenish white with purple margins, semiterete, 10 mm long, the foot equally long with a short, incurved extension.

COLOMBIA: **Antioquia**: without locality, possibly Frontino, 1876, flowered in cultivation by Messrs. Veitch, *G. Wallis s.n.* (Holotype: W), C. Luer illustr. 19399; without collection data, cultivated by Great Lakes Orchids, obtained from Sanders, Ltd. via Don Richardson, flowered 5 Apr. 1979, *C. Luer 4053* (SEL); same origin, cultivated by Colomborquídeas, via J & L Orhids 329-381, via Don Richardson, flowered 11 May 1985. *C. Luer 11342* (MO); same origin, cultivated by Malcolm Perry, England, flowered May 1992, *C. Luer 16325* (MO). Without collection data, obtained by Malcolm Perry from Bromesberrow Place, originally from Stuart Low in Sussex, cultivated by W. Königer, 25 Aug. 1989, *C. Luer 14419* (MO).



The identity of this species has been in confusion since it was described in the *Gardners' Chronicle* in 1876 from a plant cultivated by the Veitch firm in England. Reichenbach states that "it was discovered in New Grenada (no doubt in the Frontino district) by M. Wallis, and has just flowered with Messrs. Veitch." He also states that it is "somewhat like old *Masdevallia elephanticeps* itself, though the flower reaches only two-fifths of the size." No other collection from the wild is known.

In her monograph *The Genus Masdevallia*, Miss Woolward treated the name *M. gargantua* as a synonym of *M. elephanticeps*. She states that "the plant is now grown in many collections of Masdevallias under the two names, the flowers being always identical." No doubt, she is referring to the true *M. elephanticeps* which had been collected numerous times by several early collectors, because *M. gargantua* is not known to have been collected again. A note by Lehmann in her monograph states that the collection from Antioquia attributed to *M. gargantua* was found near Santo Domingo. However, the large-flowered, foul-smelling species found near Santo Domingo is now known to be *M. velifera*.

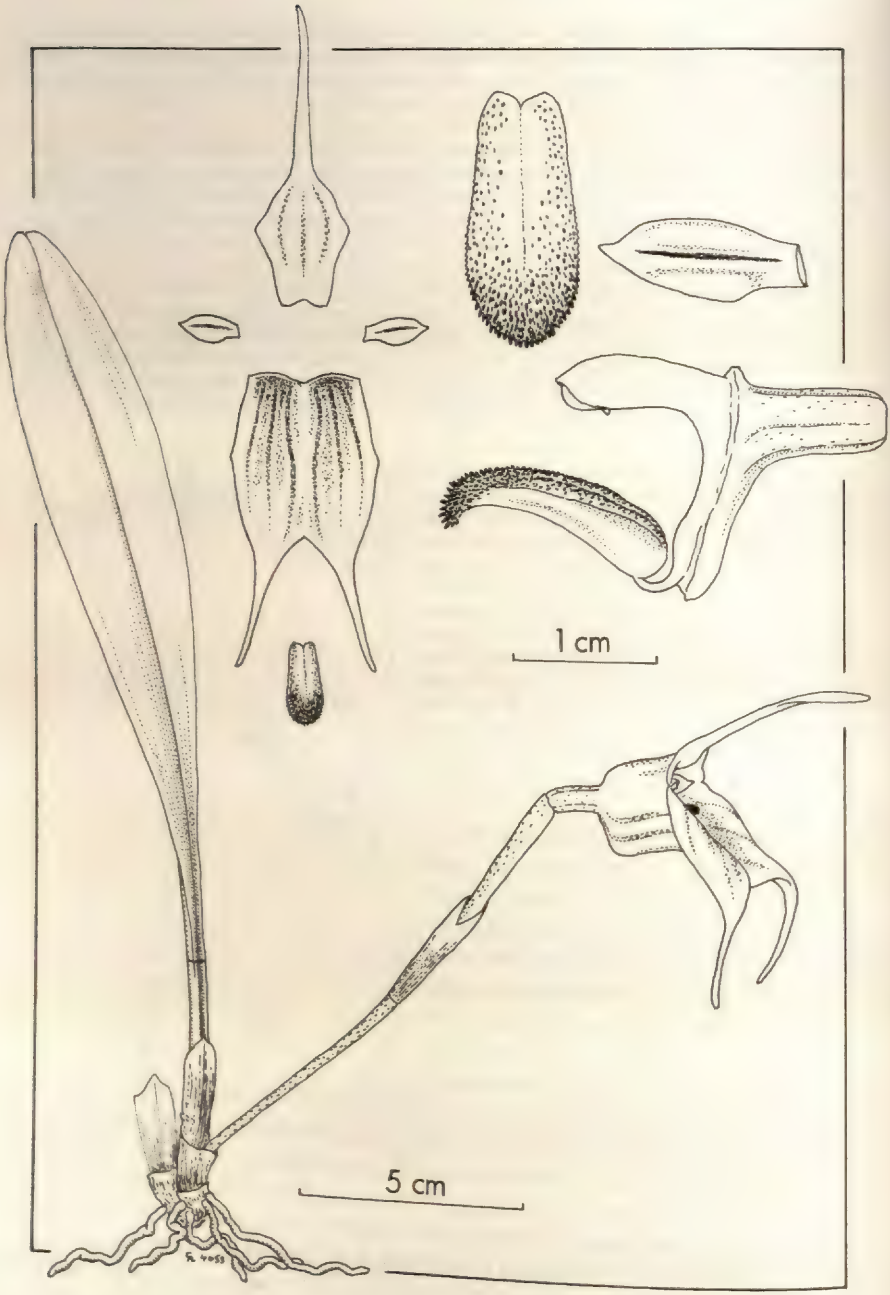


Plate 156. Masdevallia gargantua
(M. civilis *'Don'*)

Masdevallia gargantua cannot be synonymous with *M. elephanticeps*, because the much smaller, dried flower has short tails, very different from the long, broad tails of *M. elephanticeps*. *Masdevallia gargantua* cannot be synonymous with *M. velifera*, because a sketch of the profile of *M. gargantua* reveals the sepals connate into a straight tube. Although the peduncle of the type-specimen of *M. gargantua* is comparatively short, the remaining vegetative and floral parts are compatible with a plant of unknown origin that has been cultivated under the name *'Masdevallia civilis 'Don.'*

In 1957, the late Don Richardson at that time of West Orange, NJ, purchased plants from Sanders Ltd., St. Albans. One plant was labelled *M. gargantua*, but Richardson changed the name to *M. elephanticeps*. On 24 Feb. 1960, it was exhibited at regional judging in NY and was awarded the clonal name *civilis 'Don.'* Another very similar plant cultivated by Malcolm Perry was obtained from the nursery Stuart Low which no longer exists. The possibility of a hybrid origin had been considered.

Vegetatively, the plants are large, similar to that of *M. colossus* or *M. elephanticeps*. The fleshy flower is similar to that of *M. colossus*, although smaller with much shorter tails. The sepals are dull, light green, more or less suffused with light purple within, and speckled with purple along the veins externally. The petals are elliptical without a protruding callus. The lip is also elliptical but densely short-spiculate toward the rounded apex.

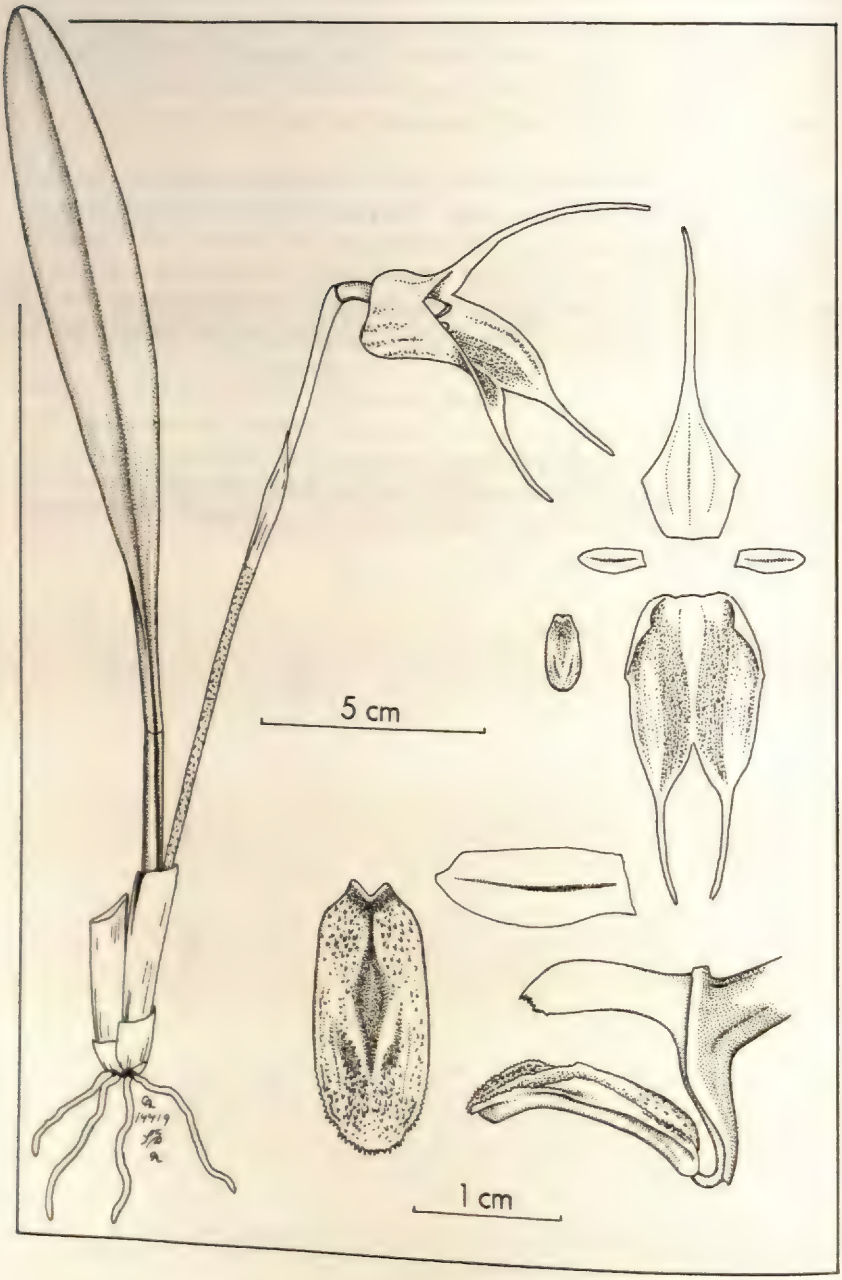


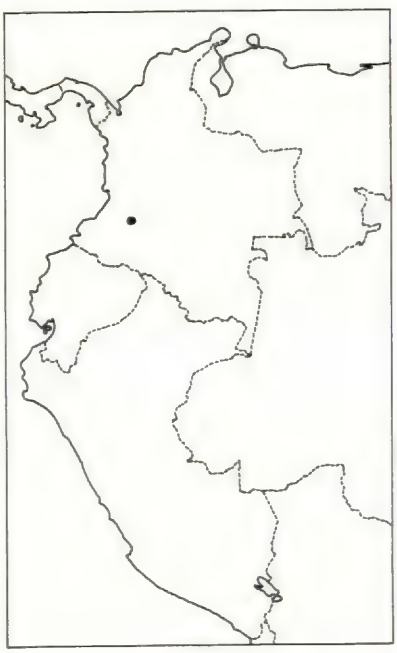
Plate 157. Masdevallia gargantua

Masdevallia hylodes Luer & Escobar, Orquideología 13: 162, 1979.

Ety.: From the Greek *hylodes*, "woody," referring to the texture of the flower.

Plant large, epiphytic, caespitose; roots coarse. Ramicauls erect, stout, 4-8 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thickly coriaceous, subpetiolate, 15-24 cm long including the petiole 2-3 cm long, the blade elliptical, subacute to obtuse, 3-3.8 cm wide, cuneate below into the channeled petiole. **Inflorescence** a solitary, foul-smelling flower, borne by a stout, erect peduncle, 6-7 cm long, with a bract at the base, from low on the ramicaul; floral bract tubular, 2-2.3 cm long; pedicel stout, spotted with purple, 5-5.5 cm long; ovary green, 10-11 mm long; **sepals** yellow, diffusely dotted with red-purple, thickly fleshy, rigid, glabrous externally, minutely red-pubescent within, the dorsal sepal ovate, 42 mm long, 13 mm wide, connate to the lateral sepals for 11 mm to form a broad, sepaline tube, the acute apex acuminate into a stout, forwardly directed, yellow tail ca. 1.5 cm long, the lateral sepals ovoid, oblique, 38 mm long, connate 10 mm to form a deeply concave synsepal that cannot be spread, 16 mm broad unexpanded, forming a broad mentum with the column-foot, the acute apices acuminate into thick tails ca. 1.5 cm long; **petals** yellow with purple midvein and a few dots, cartilaginous, elliptical, obtuse, 9.5 mm long, 3.75 mm wide, both halves thickened, slightly concave centrally, the labellar margin slightly swollen near the middle; **lip** yellow with coalescing purple spots, thick, obovate, 12 mm long, 6 mm wide, the apex obtuse, verrucose, the disc shallowly sulcate, the the base subcordate with a cavity on each side, hinged below; **column** white with purple margins, semiterete, 8 mm long, the foot equally long, with an incurved extension.

COLOMBIA: **Cauca**: San Sebastian, Páramo de Barbillas, alt. 3100 m, 27 July 1978, discovered by C. Díaz & F. Tombé, *R. Escobar, C. Luer, J. Luer, A. Lehmann de Sarria & J. Kuhn 1899* (Holotype: JAUM; Isotype: SEL), C. Luer illustr. 3055.



Only one large plant of this robust species was discovered in a cold, subparamo forest in southern Colombia in 1978. To date it has not been collected again. Growing nearby in shaded leaf-litter were many plants of *M. racemosa*.

Vegetatively, *M. hylodes* is similar to other large species of the section *Coriaceae*. The foul-smelling flower is borne by a stout pedicel and pedicel about midway the length of the leaf. The thickly rigid sepals are greenish and flecked with purple, and connate into a box-like flower. The thick tails are acuminate continuations of the apices of the sepals. No part of the flower can be bent without fracturing. The lip is obovate and subacute with a pair of deep cavities at the base.

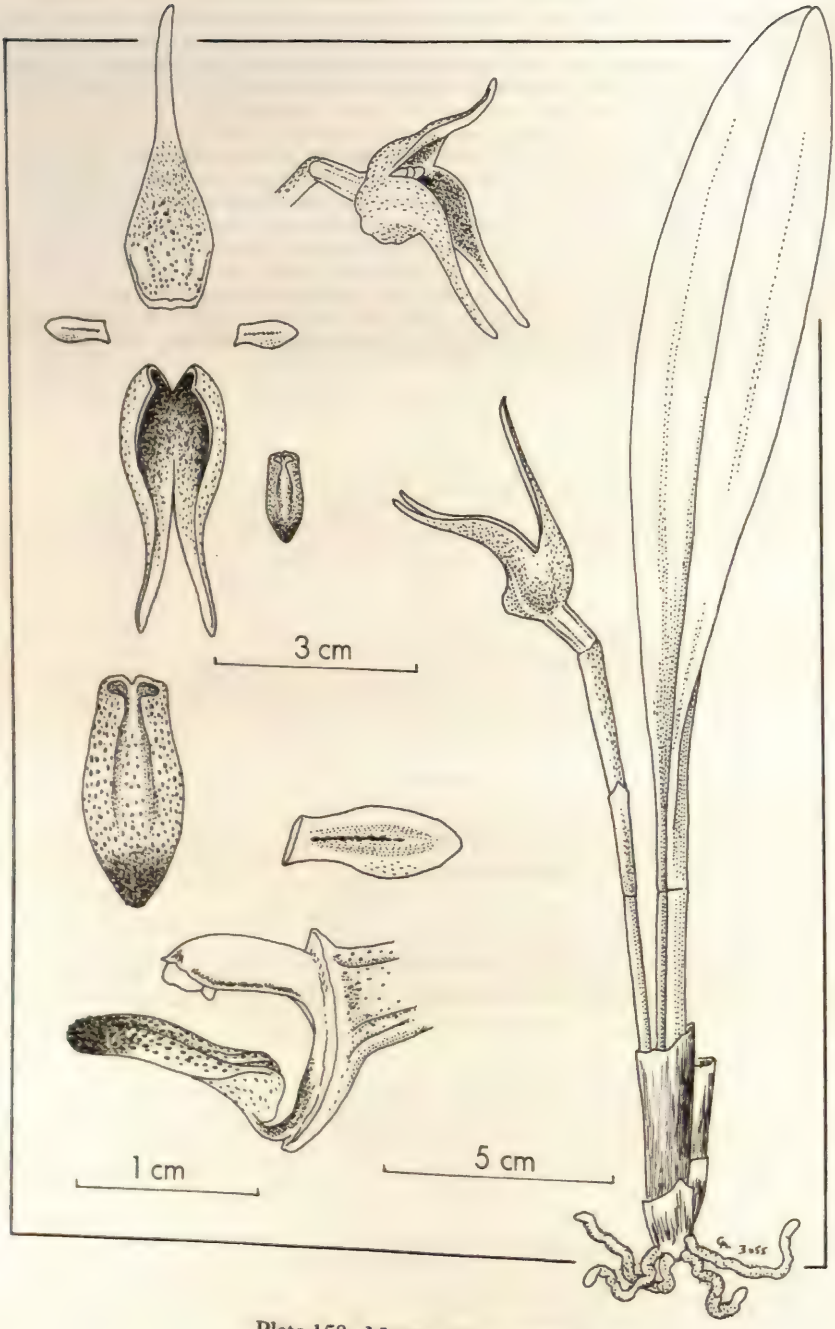


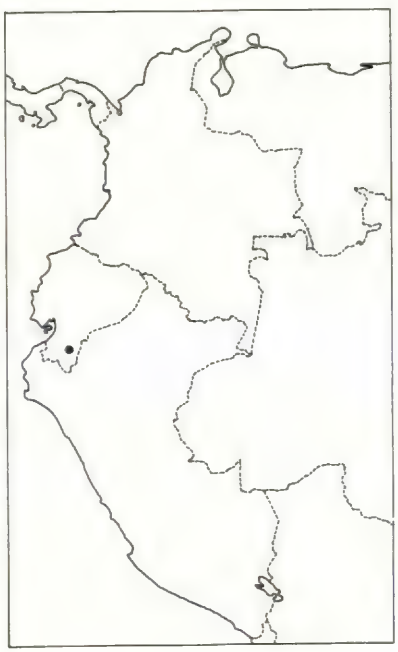
Plate 158. Masdevallia hylodes

Masdevallia hystrix Luer & Hirtz, Die Orchidee 37: 139, 1986.

Ety.: From the Latin *hystrix*, "a porcupine," referring to the markedly prickly apex of the lip.

Plant large, robust, epiphytic, caespitose; roots coarse. Ramicauls stout, erect to suberect, 3-7 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** thickly coriaceous, subconduplicate, erect to suberect, 12-21 cm long including an indistinct petiole 1-2 cm long, narrowly oblong, obtuse, 1.5-2.2 cm wide, cuneate below into the subpetiolate base. **Inflorescence** a large, solitary flower borne by a suberect, stout peduncle 4-8 cm long, spotted with purple, with a basal bract, from low on the ramicaul; floral bract tubular, 2 cm long; pedicel 4 cm long; ovary 1.2 cm long; **sepals** rigidly fleshy, glossy green, suffused with red-brown externally, olive green, suffused with dull brown between the veins internally, the dorsal sepal ovate, ca. 25 mm long, 14 mm wide, connate to the lateral sepals for 10 mm to form a broad, cylindrical tube, the free portion triangular with the acute apex produced into a thick, olive tail 4 cm long, the lateral sepals ovate, oblique, ca. 35 mm long, 13 mm wide, connate 10 mm, forming a deep chin with the column-foot, the acute apices contracted into thick, olive tails 2.5 cm long; **petals** white, cartilaginous, elliptical-oblong, obtuse, 12 mm long, 4.5 mm wide, the labellar margin callous with a low, obtuse angle between the middle and lower thirds; **lip** dark purple, thickly cartilaginous, oblong-obscurely 3-lobed, 15 mm long, 7.5 mm wide, the margins erose above the middle, the apical fourth contracted into a purple-black, thick, ovate, obtuse, markedly echinate lobe, the disc with an oblique pair of low, irregular calli, sulcate medially, the base deeply concave on the end, hinged beneath; **column** white with purple margins, semiterete, 8.5 mm long, the thick foot equally long with a short, incurved extension.

ECUADOR: **Loja**: epiphytic in tall forest, Parqué Nacional Podocarpus, Cajanuma Range, alt. 2500 m, 21 March 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10763* (Holotype: MO).



This species is apparently endemic in the tall forests of the Parqué Nacional Podocarpus where it grows sympatrically with *M. citrinella* and *M. triangularis*.

The leaves are thickly rigid, relatively narrow, and subconduplicate. The flower is borne about half-way by a stout pedicel and peduncle. The sepals are dull green with broad, purplish stripes. The sepaline tube is broadly cylindrical with the apices of the sepals acuminate into tails about as long as the blades. The petals are elliptical and obtusely angled on the lower margin. The most distinctive feature is the thick, black, markedly echinate apex of the lip.

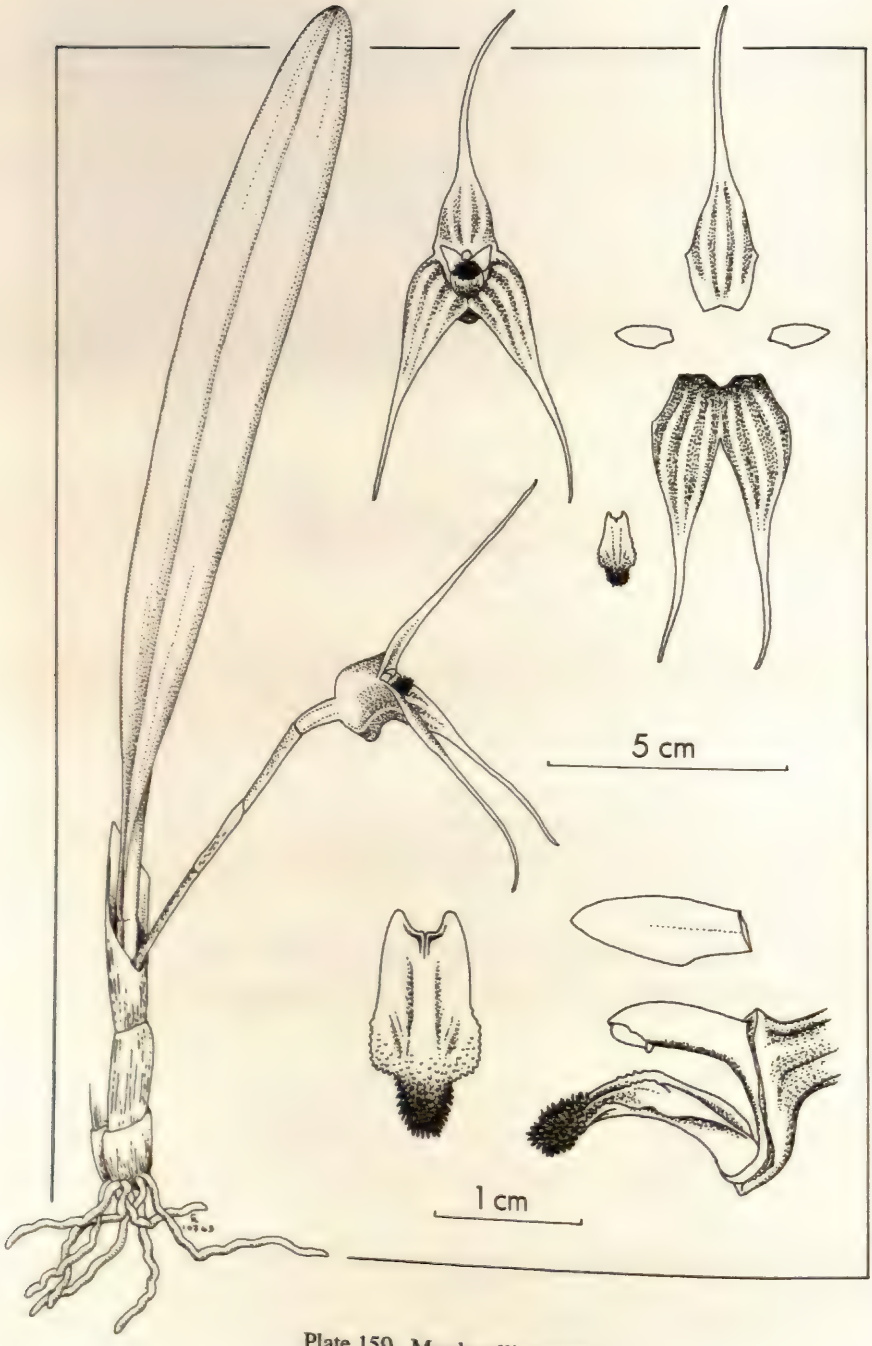


Plate 159. Masdevallia hystrix

Masdevallia leontoglossa Rchb.f., Bonplandia 3: 69, 1855.

Ety.: From the Greek *leontoglossa*, "lion-tongued," in allusion to the large, rough labellum.

Plant coarse, medium to large in size, epiphytic, caespitose; roots thick, fleshy. Ramicauls erect, stout, 2-3.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thickly coriaceous, more or less mottled or suffused with purple, 10-18 cm long including the petiole 2-4 cm long, the blade elliptical, subacute to obtuse, 1.5-3.5 cm wide, cuneate below into the purple-mottled petiole. **Inflorescence** a solitary flower borne by a relatively stout, ascending to descending peduncle 1-2 cm long, with a bract at the base, from low on the ramicaul; floral bract lightly spotted with purple, tubular 10-12 mm long; pedicel 10-14 mm long; ovary dark green, spotted with purple, 6-8 mm long; **sepals** dull greenish, speckled and mottled with purple, glabrous, minutely pubescent-verrucose within, the blade of the dorsal sepal oblong-obovate, 20-23 mm long, 13 mm wide, connate to the lateral sepals for 12 mm to form a broad, non-ventricose, cylindrical, sepaline tube, the obtuse apex contracted into an erect, thick, greenish tail 2-2.5 cm long, the lateral sepals connate 25 mm into a concave, oblong-obovate, bifid lamina, 40-45 mm long including the tails, 20-22 mm wide, the free portions oblique, acute, contracted into thick, forwardly directed tails ca. 1 cm long; **petals** white with purple midvein, cartilaginous, more or less elliptical-oblong, acute, 14 mm long, 4.5 mm wide, the labellar margin thickened with a broadly obtuse angle near the middle; **lip** white, but diffusely covered by red-purple warts, thick, elliptical-ovate, obtuse to rounded at the apex, 14 mm long, 7 mm wide, the disc diffusely verrucose, the base thickened, subtruncate, hinged below; **column** white, with a thin, purple margin, semiterete, 10 mm long, the foot thick, 4 mm long including a short, incurved extension.

COLOMBIA: **Norte de Santander**: near Río Pericos, *H. Wagener s.n.* (Holotype: W). Without collection data, cultivated by Messrs. Veitch, *W. Bull 204* (W); without collection data, cultivated Apr. 1890, at Clare Lawn, East Sheen, by *F. Wigan, Esq. s.n.* (K); Ocaña, cultivated 3 Apr. 1882, New Plant and Bulb Co., Lion Walk, Colchester, s.n. (W); epiphytic in tall, subparamo forest below Páramo de Jurisdicciones, alt. 3150 m, 30 Apr. 1982, *C. Luer, J. Luer, R. Escobar & D. Portillo 7647* (SEL); same area, alt. 2600 m, 10 May 1984, *C. Luer, J. Luer, R. Escobar & E. Valencia 10221* (MO).

Masdevallia leontoglossa was first collected by Hermann Wagener, and a few plants were cultivated in Europe in the nineteenth century. The first to flower was recorded by M. Linden in Brussels in 1867. It is well illustrated in Veitch's Manual of Orchidaceous Plants, on plate 7245 of Curtis' *Botanical Magazine* in 1892, and by Florence Woolward in her Monograph *The Genus Masdevallia* of 1896.

This large, coarse species occurs locally and uncommonly at high altitudes (over 2600 meters above sea level) in primary, cool to cold, moist forests of the Eastern Cordillera of Colombia. It grows on the mossy trunks of large trees, often in company with *M. hians, M. tubulosa*, and *M. urceolaris*, and where *M. ignea* grows terrestrially nearby in the deep humus.

Masdevallia leontoglossa is characterized by the strong habit, but with an infrequent, solitary, fleshy flower borne more or less pendently on a short peduncle. The large, diffusely warty lip is readily visible within the sepaline tube. Nectar-like recesses are present at the base.

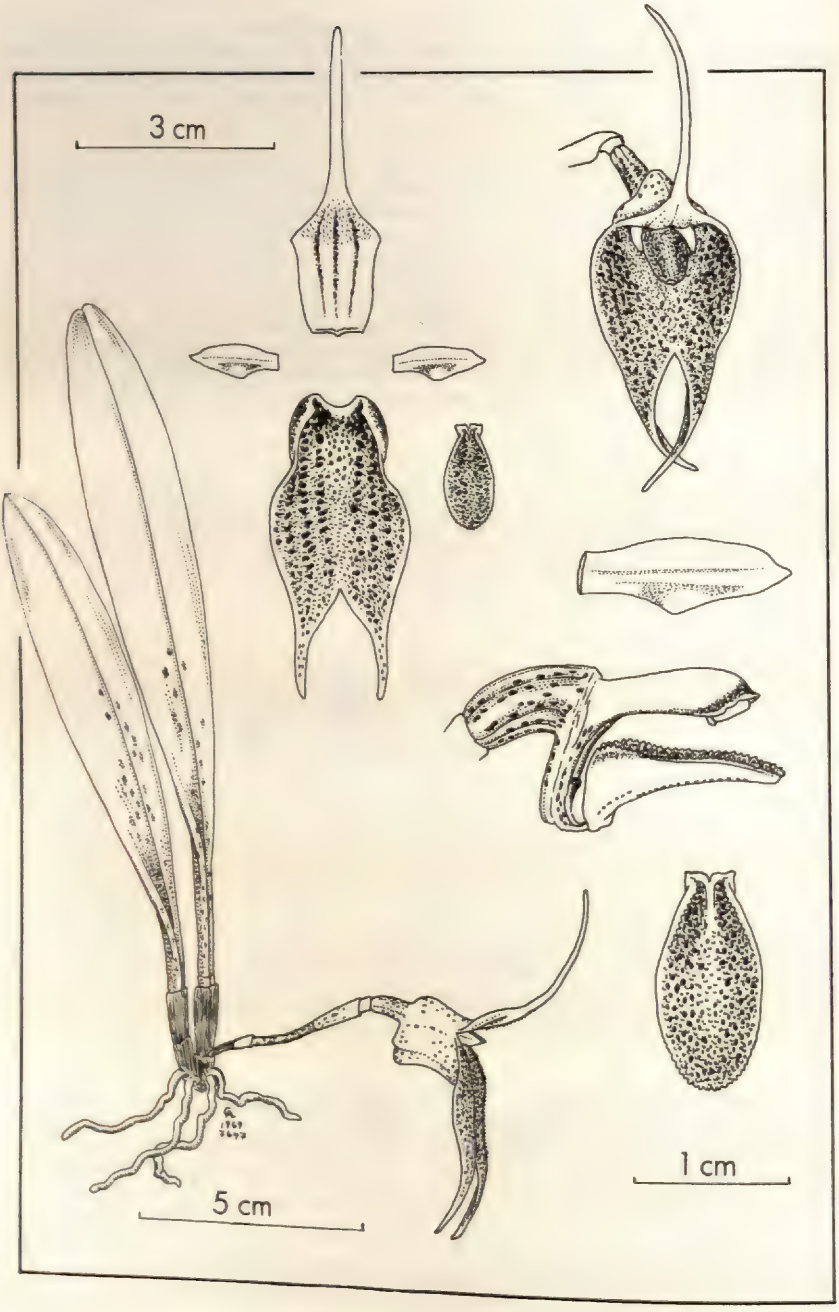


Plate 160. Masdevallia leontoglossa

Masdevallia lilianae Luer, Lindleyana 6: 90, 1991.

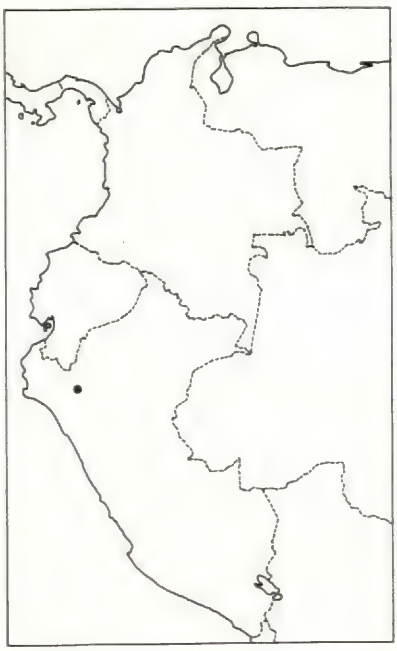
Ety.: Named in honor of Mrs. Lillian Wiggins Severin (Lil Severin) of Cupertino, California, who imported and successfully cultivated this species.

Syn.: *Masdevallia melina* Königer & Meza, Arcula 5: 125, 1996.

Ety.: From the Greek *melinos*, "like honey," referring to the color of the sepals.

Plant medium in size, presumably epiphytic, caespitose; roots coarse. Ramicauls erect, stout, 3-4 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, thickly coriaceous, 8-9 cm long including a petiole ca. 1 cm long, the blade elliptical-oblong, obtuse, 2 cm wide, cuneate below into the petiole. **Inflorescence** a solitary flower borne by a stout, erect peduncle 1-2 cm long, from low on the ramicaul; floral bract tubular, 2 cm long; pedicel 3.5 cm long; ovary 7 mm long; **sepals** fleshy, rigid, glabrous, the dorsal sepal rose, lightly mottled with red, the blade obovate, ca. 18 mm long, 11 mm wide, connate to the lateral sepals for 10 mm to form a broad, cylindrical tube, the apex subacute, contracted into a forwardly directed, yellow tail ca. 18 mm long, the lateral sepals purple, ovate, oblique, ca. 20 mm long, 10 mm wide, connate 14 mm to form a broad, deep mentum with the column-foot, the free portions triangular, acute, contracted into orange tails 12 mm long; **petals** rose, yellow toward the apex, thick, oblong, 9 mm long, 4 mm wide, the apex obtuse, the labellar margin slightly dilated near the middle; **lip** dark purple, thick, oblong, 12 mm long, 6 mm wide, the apex broadly rounded, minutely verrucose and denticulate, with a midline, verrucose callus, the disc with a pair of thick, more or less longitudinal and diverging calli, broadly separated near the middle to form a broad, flat channel, nearly approximate at the base to form a deep cleft, the base subtruncate, hinged beneath; **column** white, semiterete, 9 mm long, the foot thick, 7 mm long, with a stout, incurved extension.

PERU: **Amazonas**: without locality, obtained from Jorge Meza T. and cultivated by Lillian Severin in Cupertino, CA, flowered April 1990, *C. Luer 14729* (Holotype: MO); Táquia, alt. 2300 m, flowered in cultivation by Meza Torres in Chachapoyas, Nov. 1994, *W. Königer WK-64* (holotype of *M. melina*: M; clonotypes: K, UNALM, USM, Herb. H. Königer)



Vegetatively, this species is indistinguishable from the other medium-sized species of the section. *Masdevallia lilianae* is characterized, however, by the short peduncle and medium-sized flower with relatively short tails. Most distinguishing is the large, oblong lip that is deeply cleft at the base between a pair of thick calli. These calli separate toward the middle to create a broad, flat channel.

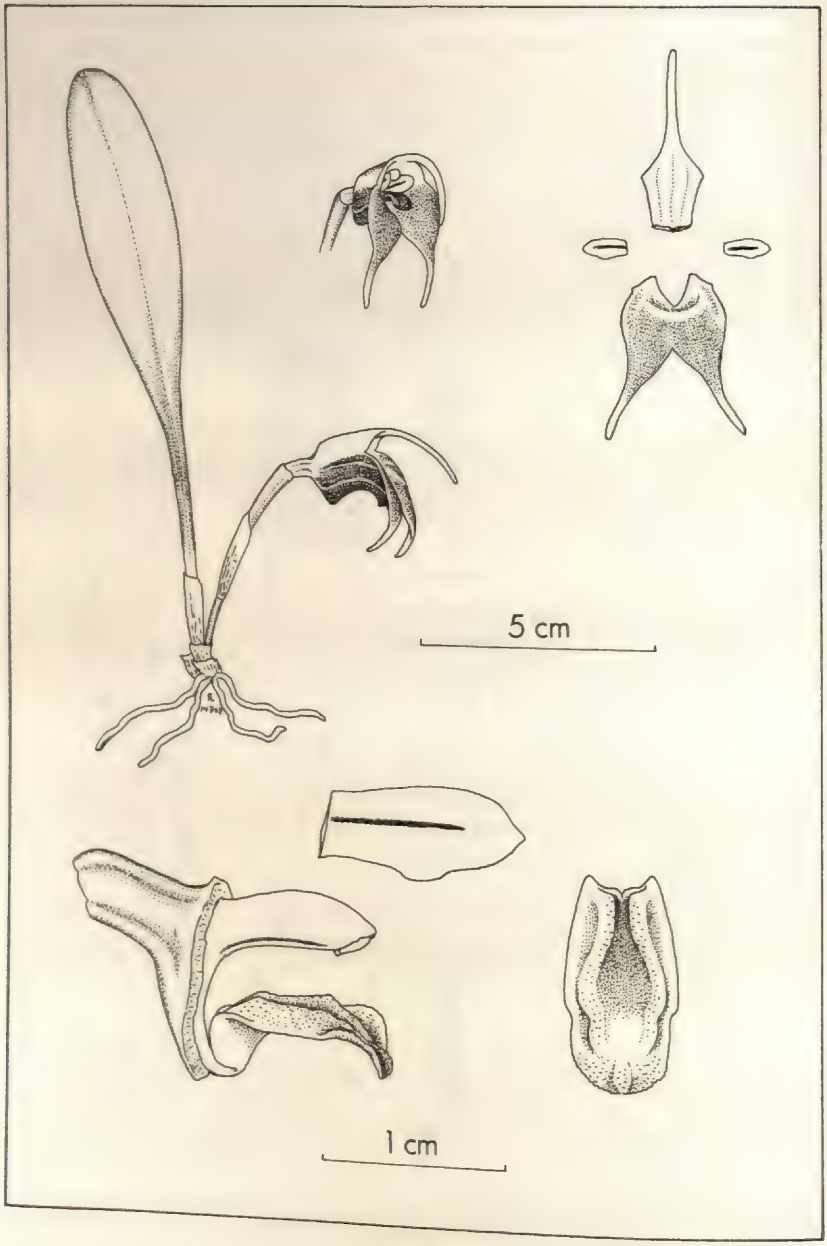


Plate 161. Masdevallia lilianae

Masdevallia macroglossa Rchb.f., Otia Bot. Hamburgensia 1: 15, 1878.

Ety.: From the Greek *makroglossa*, "a large tongue," referring to the size of the lip.

Syn.: *Masdevallia porcelliceps* Rchb.f., Gard. Chron. n.s., 19: 10, 1883.

Ety.: From the Latin *porcelliceps*, "like the head of a little pig," referring to a bud on the plant.

Syn.: *Masdevallia gerlachii* Königer, Arcula 2: 38. 1994.

Ety.: Named for Günter Gerlach of the Munich Botanical Garden, who collected this species.

Plant medium in size, epiphytic to terrestrial, densely caespitose; roots coarse. Ramicauls erect, stout, 2-3.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, rigid, thickly coriaceous, 6-15 cm long including the petiole 1-3 cm long, the blade elliptical-obovate, subacute to obtuse, 1.5-2.2 cm wide, cuneate below into the petiole. **Inflorescence** a solitary flower, borne by a slender, ascending to suberect peduncle 2-3.5 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 12-15 mm long; pedicel 20-32 mm long; ovary 5-7 mm long; **sepals** pale yellow-green, suffused and dotted with purple, minutely short-pubescent within above the middle, the dorsal sepal obovate, 20-27 mm long including the tail, 6-8 mm wide, connate to the lateral sepals for 6-9 mm to form a broadly cylindrical, sepaline tube, the apex gradually narrowed into the forwardly directed tail, the lateral sepals oblong-ovate, oblique, 20-25 mm long including the tails, each 7-9 mm wide, connate 8-10 mm to form a lamina 13-17 mm broad, and a deep mentum with the column-foot, the free portions acute, acuminate into the tails; **petals** white, marked with red-purple along the midvein, oblong-obovate, acute, 7-9 mm long, 2.5-3 mm wide, the labellar half thickened, with an indistinct, broadly obtuse marginal angle above the middle; **lip** cream-colored, diffusely dotted with purple, thick, oblong, 11-12 mm long, 4.5-5 mm wide, the apex obtuse to rounded, verrucose, the disc longitudinally sulcate, the base subcordate between concave halves, hinged beneath; **column** greenish white with a purple margin, semiterete, 6 mm long, the foot 5 mm long, with a stout, incurved extension.

VENEZUELA: **Aragua**: near Colonia Tovar, 1854-56, *A. Fendler 1373* (Holotype: W, crude sketch; Isotype K); near Colonia Tovar, July 1995, cultivated at Tarporley, England, 18 July 1998, *S. Manning 950755* (MO). **Mérida**: cloud forest above Mucuy, alt. 2550 m, *G.C.K. & E. Dunsterville 565A* (VEN); betweeen El Molino and Canagua, alt. 2500 m, 6 June 1949, *J. Renz 5436* (BAS); Canalejos, between Edigo and Parama los Gonzales, alt. 3200 m, 2 May 1949, *J. Renz 5609* (BAS); Valle de San Javier, alt. 2550 m, 5 June 1997, *J. Schneider 616* (FR). **Táchira**: between Pregonero and Bailadores, alt. 2500 m, 8 June 1949, *J. Renz 5422* (BAS); between Paramo Zumbador and Qurninquea, alt. 1800 m, 15 July 1951, *J. Renz 7224* (BAS); Páramo Zumbador, toward Michelena, alt. 2600 m, 20 Nov. 1949, *J. Renz 6242* (BAS); Páramo de Tamá, alt. 2300-2450 m, 22 May 1967, *J.A. Steyermark & G.C.K. Dunsterville 98781* (VEN); Fila del Corozo, below Pico de Naiguatá, alt. 2000 m, 6 Aug. 1966, *B. Manara 83* (VEN). **Trujillo**: between Trujillo and Boconó, alt. 2500 m, 8 May 1948, *J. Renz 4671* (BAS); above Jajó, 2400 m, *G.C.K. & E. Dunsterville 565B* (VEN); Páramo de Guaramacal, alt. 1800 m, collected by G. Gerlach, 1981, flowered in cultivation at M, Oct. 1993, *W. Königer WK29* (holotype of *M. gerlachii*: M; isotype: VEN); C. Luer illustr. 19373.

COLOMBIA: **Norte de Santander**: epiphytic in scrub forest below Páramo de Jurisdicciones, alt. 3150 m, 10 May 1984, *C. Luer, J. Luer, R. Escobar & E. Valencia 10244* (MO). **Santander**: epiphytic in scrub vegetation east of Bucaramanga toward Berlín, alt. 3200 m, 27 Apr. 1982, *C. Luer, R. Escobar & D. Portillo 7608* (AMES, SEL). Without collection data, cultivated Jan. 1882 by *J. O'Brien s.n.* (holotype of *M. porcelliceps*).

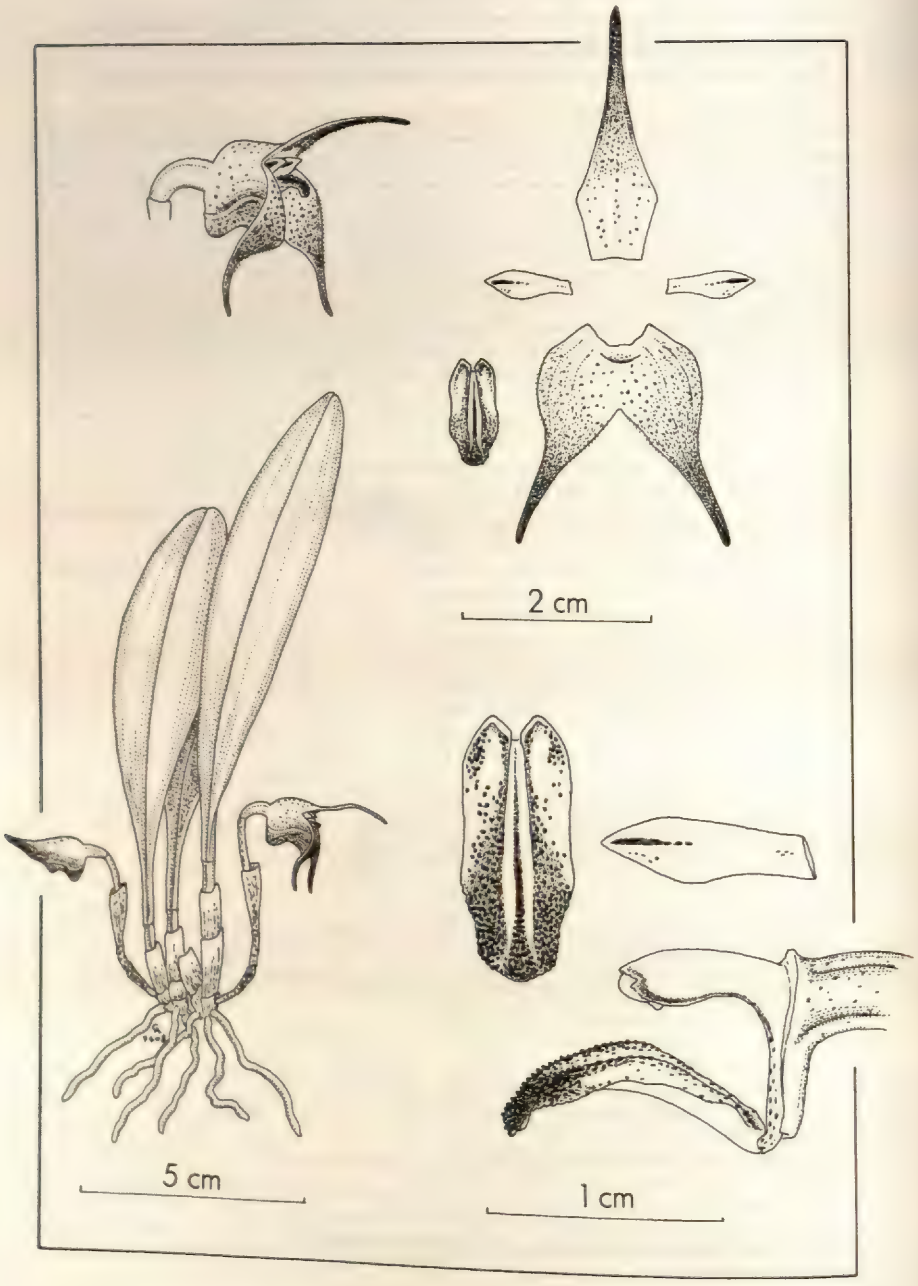


Plate 162. Masdevallia macroglossa

This species, rather frequent in the Eastern Cordillera of Colombia and western Venezuela, was first discovered in the coastal mountains of Venezuela by A. Fendler about 1855. The holotype (*Fendler 1373*) at Vienna is merely a sketch without collection data. An isotype at Kew was identified as *M. porcelliceps* by Rolfe. Dunsterville's illustration of *M. macroglossa* was erroneously identified as *M. civilis* in *Venezuelan Orchids Illustrated* with four valid species [*M. fragrans, M. haematosticta (M. peristeria), M. leontoglossa*, and *M. macroglossa*] included in the synonymy. A collection by Dr. Gerlach was published as *M. gerlachii* with an inaccurate illustration.

Masdevallia macroglossa is characterized by thick, leathery leaves; a short, peduncle that may ascend or descend; and a comparatively small, fleshy, malodorous flower. The petals have an obscure marginal angle. The lip is proportionately large (twice as long as the column), verrucose, and longutudinally sulcate with a pair of presumably nectariferous concavities at the base.

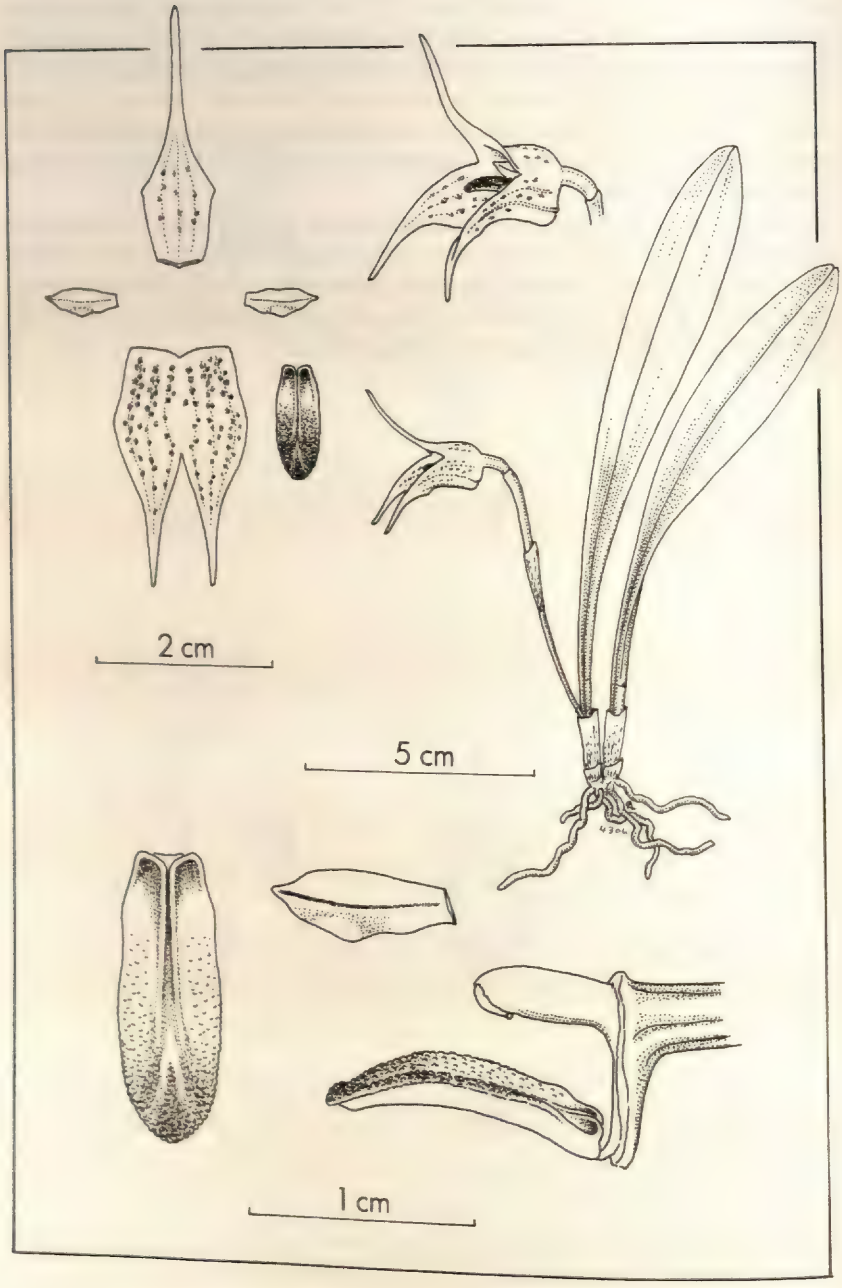


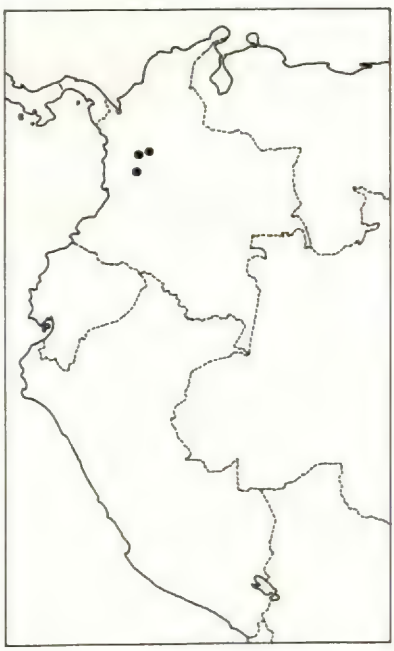
Plate 163. Masdevallia macroglossa

Masdevallia macrura Rchb.f., Gard. Chron. n.s., 1: 240, 1874.

Ety.: From the Greek *makrura*, "large- or long-tailed," in reference to the huge, sepaline tails.

Plant large, robust, epiphytic to lithophytic, caespitose; roots coarse. Ramicauls erect, stout, 8-11 cm long, enclosed by 2-3 loose, inflated, tubular sheaths. **Leaf** erect, thickly coriaceous, 17-27 cm long including the petiole 3-4 cm long, the blade elliptical, obtuse, 5-7.5 cm wide, cuneate below into the channeled petiole. **Inflorescence** a huge, solitary, rigidly fleshy flower borne by a stout, erect to suberect peduncle, 18-29 cm long, with a bract below the middle, from the ramicaul 6-12 cm above the base; floral bract 2-3 cm long, loose, enclosing the pedicel and ovary; pedicel stout, 5-6 cm long; ovary 10-12 mm long; **sepals** purple, red-brown or yellow-brown, variously suffused or marked with purple, glabrous externally, verrucose within with the warts usually purple, the dorsal sepal ovate, 4-5 cm long, 2.5 cm wide, connate to the lateral sepals for 1.5 cm into a broad, gaping, sepaline cup, the free portion narrowl triangular, acute, acuminate into a suberect, thick, yellowish tail 10-15 cm long, the lateral sepals with longitudinal rows of verrucae, connate 3 cm into a broadly ovate, bifid lamina 4 cm wide, the broad, acute apices attenuated into descending, thick, yellowish tails ca 15 cm long; **petals** light yellow, dotted with purple, cartilaginous, subelliptical, 7 mm long, 2.75 mm wide, the apex narrowly truncate, obscurely bilobed, callous and obtusely angled on the upper margin, longitudinally callous along the labellar margin ending in an obtuse angle above the unguiculate base; **lip** orange, dotted with purple, thick, rigid, oblong, 7,5 mm long, 3.25 mm wide, with the apex rounded, papillose, disc shallowly sulcate between a longitudinal pair of verrucose calli, the base subcordate with nectariferous recesses within elevated margins, hinged on the end; **column** yellow-white, semiterete, 7 mm long, the foot thick, 3 mm long with a short, stout, incurved extension.

COLOMBIA: **Antioquia**: on mossy rocks near Sonsón, 1871, *B. Roezl s.n.* (Holotype: W); "Medellin," *R. Shuttleworth s.n.* (W); Sonsón, road to Argelia, Alto de las Cruces, alt. 2600 m, collected by R. Escobar, A. Mejía et al., cultivated by M. & O. Robledo at La Ceja 21 Sept. 1977, *R. Escobar 438* (JAUM, SEL), C. Luer illustr. 1931; Yarumal, road to El Cedro, alt. 1850 m, 15 Mar. 1989, *C. Luer, J. Luer, S. Dalström & W. Teague 14160* (MO). **Chocó**: Carmen de Atrato, Dos Quebradas, 1973, cultivated by M. & O. Robledo at La Ceja, 15 Jan. 1979, *C. Luer 6373* (SEL).



This gigantic species was first discovered by Benedict Roezl in the Central Cordillera of Colombia where it is endemic. Although infrequent now, it is reported to have been locally abundant in the nineteenth century. The huge vegetative habit is more or less equal to that of *M. elephanticeps* and *M. hercules*, but the flowers are the largest in the genus. A distance of 40 centimeters has been measured between the tips of the tails of the dorsal and lateral sepals. However, much smaller flowers are not infrequent. The petals and lip are not much larger than the average in the genus, those of *M. elephanticeps* and its relatives being much larger. The color of the sepals varies from the usual brownish purple to pure yellow-orange.

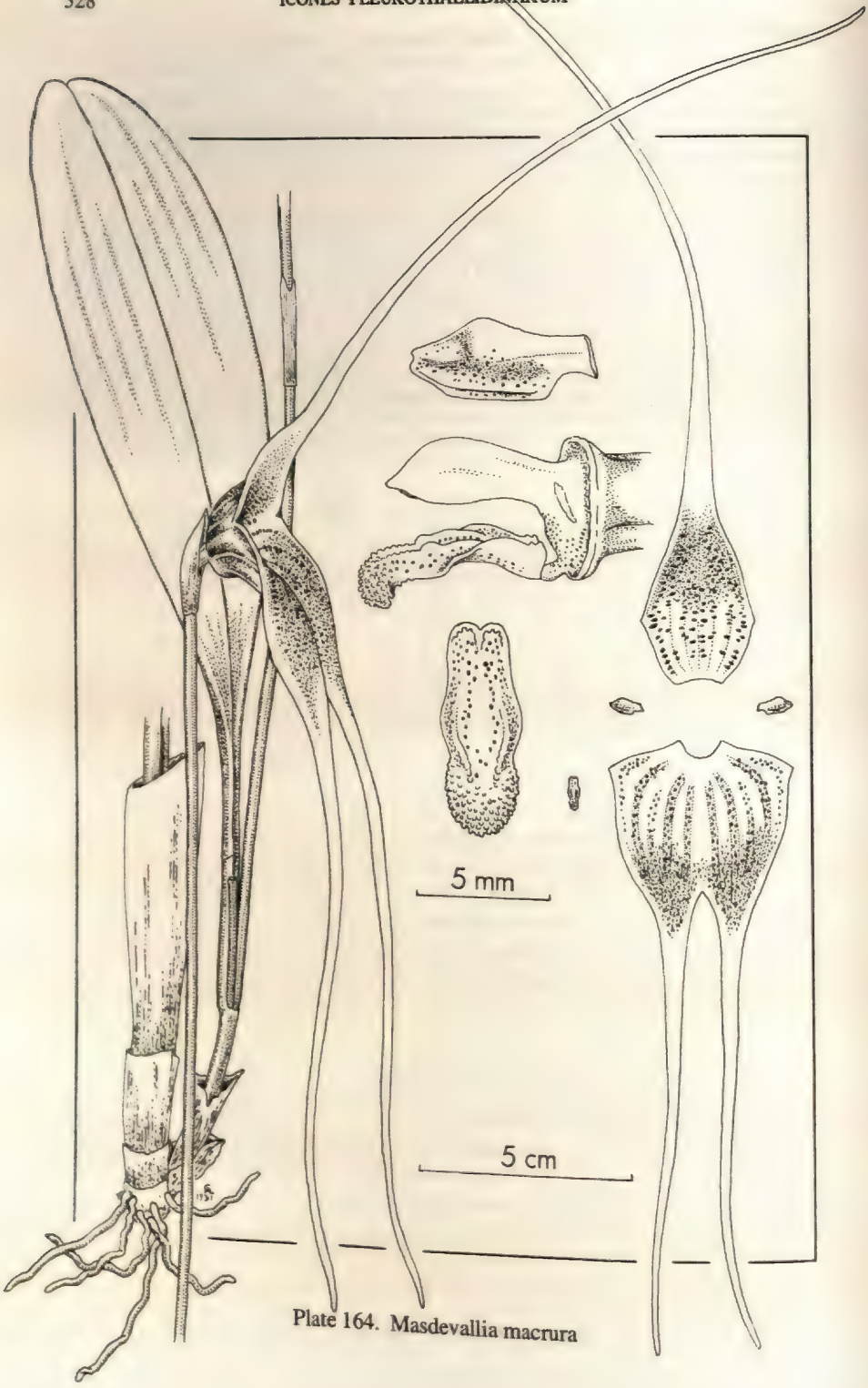


Plate 164. Masdevallia macrura

Masdevallia maloi Luer, Phytologia 39: 211, 1978.

Ety.: Named in honor of Dr. Benigno Malo of Cuenca, Ecuador, who discovered this species.

Plant large, robust, epiphytic, caespitose; roots coarse. Ramicauls stout, channeled, suberect, 6-8 cm long,enclosed by 2-3 thin, loose, tubular sheaths. **Leaf** erect, thickly coriaceous, rigid, linear-elliptical, acute, 20-30 cm long, 1.7-2.2 cm wide, gradually narrowed below into the conduplicate, subpetiolate base. **Inflorescence** a solitary flower borne by a stout, suberect peduncle 4-13 cm long, green with purple spots, with a tubular bract above the base, from low on the ramicaul; floral bract tubular, speckled with purple, 1.5-2 cm long; pedicel 6-7 cm long, speckled with purple; ovary 1 cm long, dotted with purple; **sepals** yellowish or light yellowish brown with minute, purple-brown spots externally, fleshy, rigid, subverrucose within, the dorsal sepal ovate, 6-9 cm long including the rigid tail, 13 mm wide, connate to the lateral sepals for 10 mm into a rigid, cylindrical tube, the free portion narrowly triangular, gradually narrowed into the tail, the lateral sepals narrowly ovate, oblique, 6-8 cm long including the tail, 12 mm wide, connate 8 mm; **petals** white with purple midvein, elliptical-oblong, 9.5 mm long, 4 mm wide, the apex rounded, the lower half with a low, rounded, longitudinal callus, and a similar but smaller callus on the opposite half; **lip** cream with multiple, purple, raised spots, oblong, 11 mm long, 5 mm wide above the middle, with undulate margins, the apex obtuse to rounded, papillose, the base truncate, hinged below; **column** yellowish white, semiterete, 8 mm long, the foot stout, 4 mm long, with a short, incurved extension.

ECUADOR: **Loja**: Cordillera de Sabanilla, alt. 2900 m, Sept. 1973, collected by B. Malo, cultivated at Tarqui near Cuenca, 11 July 1977, *C. Luer 1685* (Holotype: SEL; clonotype: K); same collection, cultivated at Colomborquídeas in Colombia, 20 Apr. 1988, *C. Luer 13283* (MO).

This large, coarse species is apparently endemic to the forests of one area of the Cordillera de Sabanilla in southern Ecuador, so far, never having been found elsewhere. The narrow leaves are unusually thick and rigid. The solitary, hard, dull yellow-brown flower is characterized by a short, cylindrical tube and long, attenuated free parts of the sepals. The petals are thick with a callus on both halves. The lip is oblong with a papillose apex, and covered by tiny, raised purple-black spots.

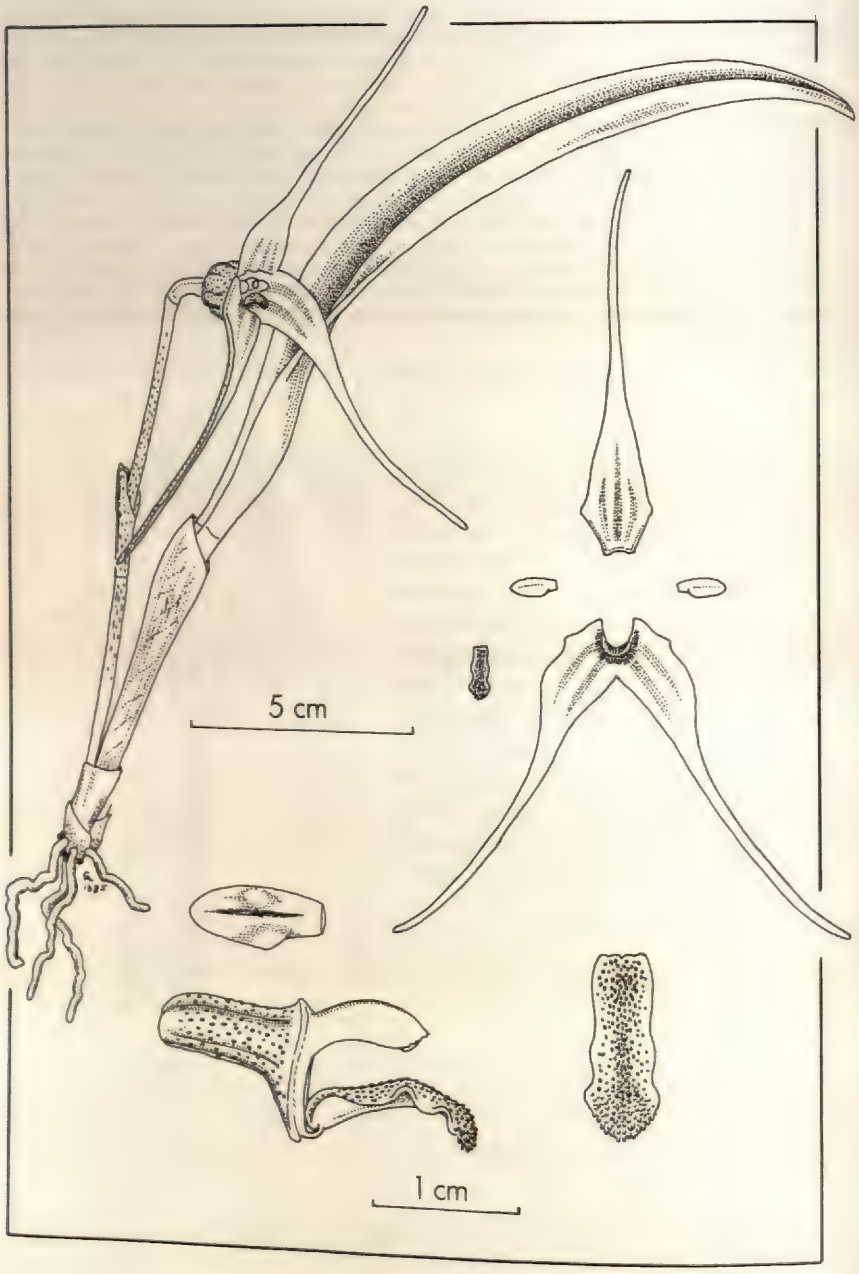


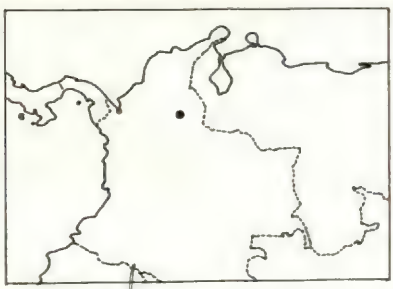
Plate 165. Masdevallia maloi

Masdevallia misasii Braas, Die Orchidee 33: 148, 1982.

Ety: Named for Dr. Guillermo Misas U. of Medellín, Colombia, who first described this species.

Syn.: *Masdevallia reflexa* Misas, Orquideología 12: 149, 1977, non Schltr. 1923.
Ety.: From the Latin *reflexus*, "reflexed," referring to the tails of the sepals.

Plant large, epiphytic, caespitose; roots coarse. Ramicauls erect, stout, 3-6.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, dark green, thickly coriaceous, 10-22 cm long, 3-4.5 cm wide, the blade elliptical, obtuse to subacute, the base cuneate into the channeled petiole. **Inflorescence** a large, solitary flower borne by a suberect, stout peduncle 3-9.5 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 2-2.5 cm long; pedicel stout, 3.5-5 cm long; ovary spotted with purple, 7-10 mm long; **sepals** green, variously spotted with purple-brown, rigidly fleshy, glabrous, the dorsal sepal ovate, 25-30 mm long, 14-20 mm wide, connate to the lateral sepals for 14-16 mm to form a broad, cylindrical, sepaline tube, the free portion acute, contracted into a suberect, slender yellow tail 7-8 cm long, the lateral sepals suffused with purple-brown or red-brown below the middle, connate 25-30 mm over a transverse fold formed by an acute deflexion below the middle, forming a deep mentum with the column-foot, the blade more or less flat or with recurved sides, ovate and bifid distal to the deflexion, the synsepal 30-40 mm long expanded, 22-25 mm wide, the acute apices contracted into slender tails 4-5 cm long; **petals** light green, cartilaginous, oblong, acute, 10 mm long, 2.5 mm wide, thicker along the labellar margin and obtusely angled; **lip** cream, diffusely dotted with red-purple to light brown suffused with purple-brown, rigidly fleshy, arcuate, obovate-spathulate, 11 mm long, 6-7 mm wide, narrowed with reflexed margins below the middle, ovate, obtuse and muricate above the middle with denticulate margins, the subtruncate concave on both halves into nectariferous recesses, hinged beneath; **column** light green, mottled with rose, semiterete, 8 mm long, the foot equally long with a stout, incurved extension.



COLOMBIA: **Santander**: near Velez, 1977, *Sra. Berta S. de Laserna s.n.* (Holotype: JAUM); same collection, cultivated by M. & O. Robledo at La Caja, 13 Oct. 1977, *C. Luer 2014* (SEL); epiphytic in cloud forest between Velez and Landazuri, alt. 2400 m, 4 May 1984, *C. Luer, J. Luer, R. Escobar & E. Valencia 10106* (MO).

This species was first discovered by Sra. Bertha de Laserna, orchid enthusiast of Bogotá, Colombia, and her chauffeur while on an orchid-collecting trip in the department of Santander in the Eastern Cordillera. It was described by Dr. G. Misas, but the epithet chosen had been used for a Costa Rican species by Schlechter, a synonym of *M. cupularis*.

The species was rediscovered in the same area in 1984. Plants were found growing high in tall, mossy, cloud forest trees. The size and color of the flowers are variable. Some flowers are nearly pure green, while others are intensely suffused and dotted with red-purple or red-brown. As in *M. velifera*, the synsepal is acutely deflexed beyond the tube. The petals are acute and obtusely angled on the lower margin. The lip is subunguiculate, broadly dilated and intensely spiculate-verrucose above the middle.

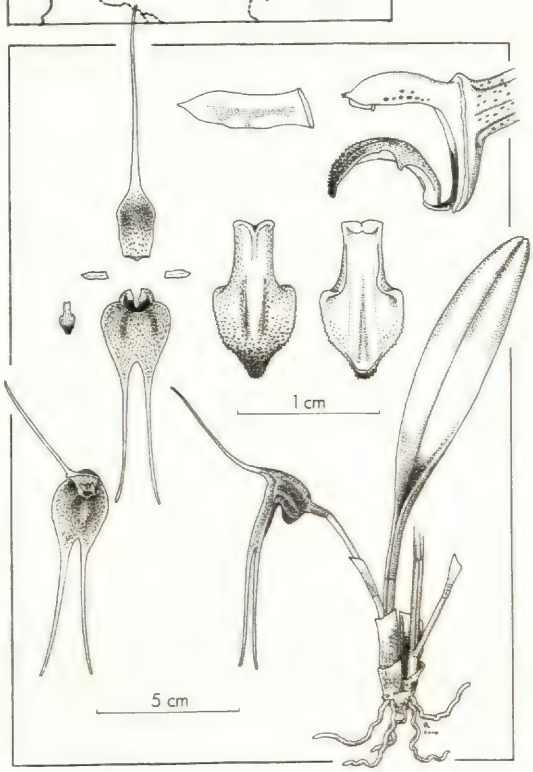


Plate 166. Masdevallia misasii

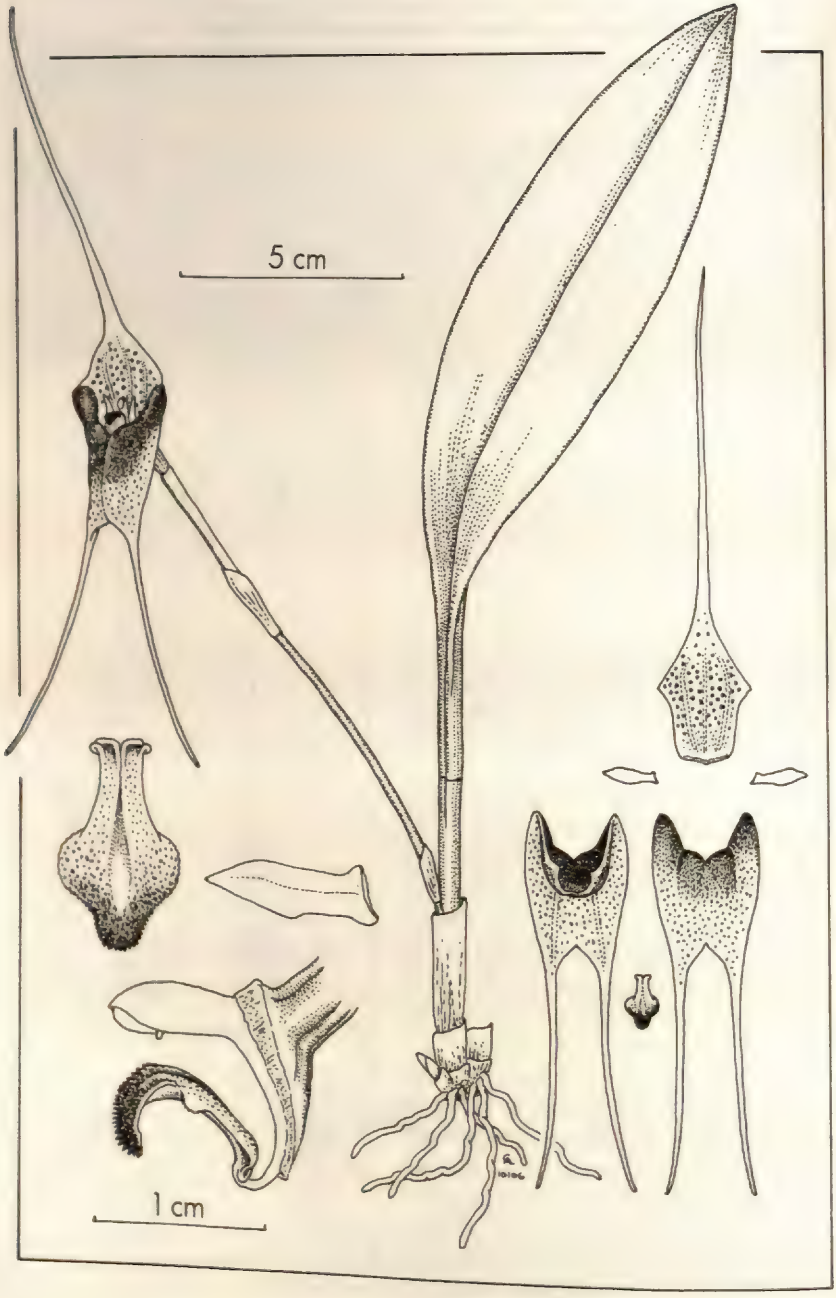


Plate 167. Masdevallia misasii

Masdevallia mooreana Rchb.f., Gard. Chron. n.s., 21: 408, 1884.

Ety.: Named in honor of F.W. Moore who sent the specimen to Reichenbach from the Royal Botanic Gardens at Glasnevin.

Syn.: *Masdevallia sororcula* Rchb.f., Gard. Chron. ser. 3, 2: 713, 1887.

Ety.: From the Latin *sororcula*, "a little sister," referring to a fanciful relationship with *Masdevallia elephanticeps*.

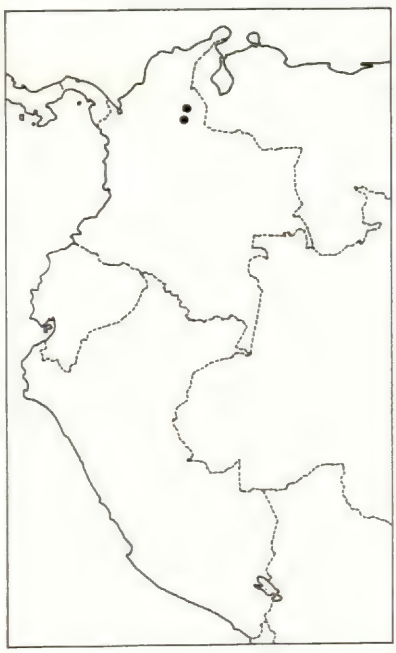
Syn.: *Masdevallia atroviolacea* Kraenzl., Notizbl. Bot. Gart. Berlin-Dahlem 8: 130, 1922.

Ety.: From the Latin *atroviolaceus*, "dark violet," referring to the dark color of dried flowers.

Plant large, epiphytic to terrestrial, caespitose; roots coarse. Ramicauls erect, stout, 3-6 cm long, enclosed by 2-3 thin, loose, tubular sheaths. **Leaf** erect, thickly coriaceous, 12-17 cm long including the petiole 3-5 cm long, the blade elliptical, obtuse, 2.5-3.5 cm wide, cuneate below into the channeled petiole. **Inflorescence** a large, solitary flower, borne by a stout, erect to suberect peduncle, 4-11 cm long, speckled with purple, with a bract near the base, from low on the ramicaul; floral bract tubular, 1.5-2.3 cm long; pedicel 3-6 cm long; ovary 7-8 mm long; **sepals** fleshy, minutely verrucose within, the dorsal sepal green with 3 purple stripes, broadly obovate, 22 mm long, 18-22 mm wide, connate to the lateral sepals for 12-14 mm into a broad, sepaline tube, the free portion triangular, with the apex subacute, contracted into a suberect, slender, greenish tail 3.5-5 cm long, the lateral sepals variously suffused and dotted with purple, ovate, oblique, 30 mm long, connate 12-13 mm to form a lamina 28-30 mm wide expanded, at the base connate 11 mm to the column-foot to form a deep mentum, the free portions triangular, acute, contracted into slender, green tails 3-4 cm long; **petals** light green with a purple midvein, cartilaginous, oblong-obovate, acute, 12-13 mm long, 3.5-5.5 mm wide, longitudinally thickened on both halves, with an obtuse angle on the labellar margin above the middle; **lip** dark purple, thick, rigid, obovate-spathulate, 15 mm long, 7-9 mm wide, the apical half markedly verrucose, obtuse to rounded, narrowed below the middle, 4 mm wide, longitudinally deeply channeled, the base subcordate with elevated margins, hinged on the end; **column** green with purple margins, semiterete, 10-11 mm long, the foot 12-14 mm long with a short, stout, incurved extension.

Without collection data, cultivated at the Royal Botanic Gardens, Glasnevin, Ireland, 1884, by *F.W. Moore s.n.* (Holotype: W; Isotypes: BM, K). Without collection data, cultivated at Burford Lodge, England, Sept. 1886, by *Sir Trevor Lawrence s.n.* (holotype of *M. sororcula*: W).

COLOMBIA: **Norte de Santander**: Páramo de Jurisdicciones, alt. 2600-2800 m, collected Gilberto Escobar et al., cultivated at La Estrella by O.J. Arango, 26 Sept. 1977, *C. Luer 1844* (SEL). **Santander**: Pico Diamanta, *Kalbreyer 1083* (holotype of *M. atroviolacea*, destroyed at B); epiphytic in cloud forest east of Bucaramanga, alt. 2800 m, 27 Apr. 1982, *C. Luer, J. Luer, R. Escobar & D. Portillo 7609* (SEL); same area, alt. 2550 m, 7 May 1984, *C. Luer, J. Luer, R. Escobar & E. Valencia 10198* (Neotype of *M. atroviolacea* here designated: MO).



This robust species, endemic in the Eastern Cordillera of Colombia, was described by Reichenbach from a plant received in 1883 from F.W. Moore, grower at the Royal Botanic Gardens at Glasnevin. In 1887, Reichenbach described *M. sororcula* from a single flower cultivated by Sir Trevor Lawrence from an unknown locality. Woolward was correct when she listed it as a synonym accompanying her painting of *M. mooreana*. However, she also listed *M. elephanticeps* var. *pachysepala*, a much larger-flowered

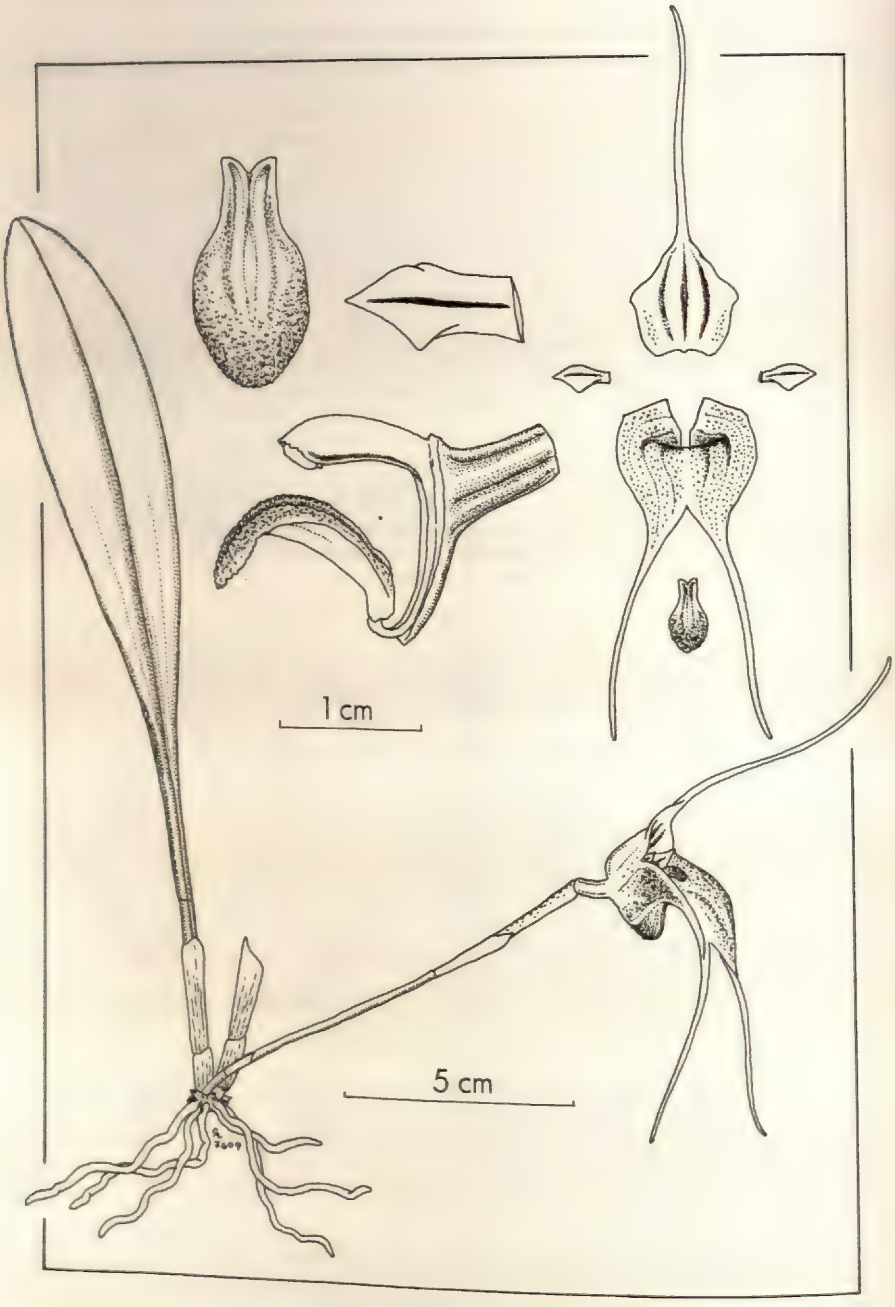


Plate 168. Masdevallia mooreana

species with a deeply cleft synsepal and broad tails, as a synonym. Following her, Garay erroneously identified an illustration of the latter as *M. mooreana* in *Venezuelan Orchids Illustrated.*

Masdevallia mooreana is distinguished by the large, fleshy flower with a green, purple-striped dorsal sepal and a dark purple synsepal variously suffused and dotted between darker veins. The tails are long and relatively slender. The petals are acute with an obtuse angle on the labellar margin above the middle. The thick lip is distinctive with its spathulate shape, described by Reichenbach as "three-lobed." Above the middle it is broadly obtuse and markedly verrucose. It is narrowed below the middle and deeply channeled. The bilaterally concave, cordate base, clearly shown in Miss Woolward's painting, suggests a nectariferous role.

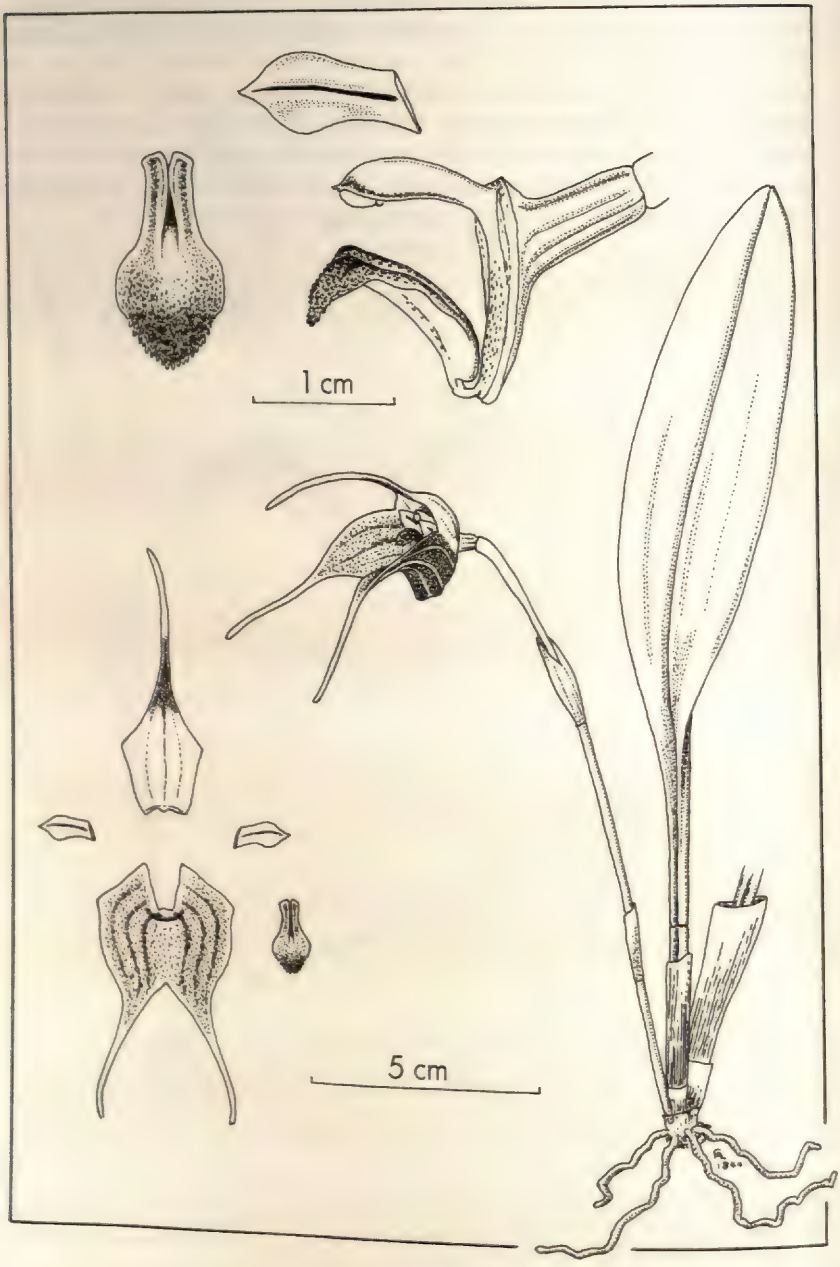


Plate 169. Masdevallia mooreana

Masdevallia murex Luer, Selbyana 7: 112, 1982.

Ety.: Named for the similarity of the extremely verrucose apex of the lip to the warty shell of some species of *Murex*, a genus of mollusks.

Plant medium in size, epiphytic, caespitose; roots coarse. Ramicauls stout, suberect, 2-3 cm long, enclosed by 2-3 loose, imbricating, tubular sheaths. **Leaf** erect, thickly coriaceous, shortly petiolate, 9-15 cm long including the petiole 1.5-2.5 cm long, the blade narrowly elliptical, 2-2.8 cm wide, the apex rounded the base narrowly cuneate into the petiole. **Inflorescence** a solitary flower borne by a suberect, stout peduncle 1.5-2 cm long, from low on the ramicaul; floral bract 12-16 mm long; pedicel green, suffused with purple, 25-32 mm long; ovary green, 5 mm long; **sepals** rigidly fleshy, green with 3 dark purple-brown veins on each, appearing glabrous but microscopically cellular-pubescent above the middle within, the dorsal sepal obovate, ca. 17 mm long, 12 mm wide, connate to the lateral sepals for 10 mm to form a broad, cylindrical tube, the triangular free portion acuminate into the red-brown, forwardly directed tail ca. 14 mm long, the lateral sepals obliquely ovate, 15 mm long, 10 mm wide, connate 8 mm, the acute apices contracted into tails 10 mm long, similar to that of the dorsal sepal; **petals** greenish white with a broad, dark purple, central stripe, cartilaginous, elliptical, obtuse, 9.5 mm long, 3.5 mm wide, dilated on both margins near the middle with low calli; **lip** thick, yellow-orange, marked with purple-brown, oblong-elliptical, 11.5 mm long, 6 mm wide, the narrowly obtuse apex deep purple-brown, markedly verrucose with deflexed margins, the truncate base hinged beneath; **column** greenish white with purple margins, semi-terete, 8 mm long, the foot 5 mm long with an incurved extension.

ECUADOR: **Zamora-Chinchipe**: epiphytic in cloud forest above Valladolid, Río Blanco, alt. 1800 m, Nov. 1979, collected by Walter Teague, cultivated at SEL, 9 Oct. 1981, *C. Luer 6528* (Holotype: SEL; clonotype: K); same collection, cultivated at Colomborquídeas in Colombia, 20 Apr. 1988, *C. Luer 13273* (MO); ridge west of Zumba, alt. 1800 m, 25 Jan. 1989, *S. Dalström & T. Höijer 1191* (MO).

This species, rare and endemic in southeastern Ecuador, was first found by Walter Teague on a trek by foot across the Nudo de Sabanilla from Amaluza to Valladolid.

Masdevallia murex is related to *M. fractiflexa*, with which it grows sympatrically. Both species are similar vegetatively to the majority of the species of the section, but *M. murex* is easily distinguished by the smaller flowers with prominently purple-striped sepals, and the thick, markedly verrucose apex of the lip.

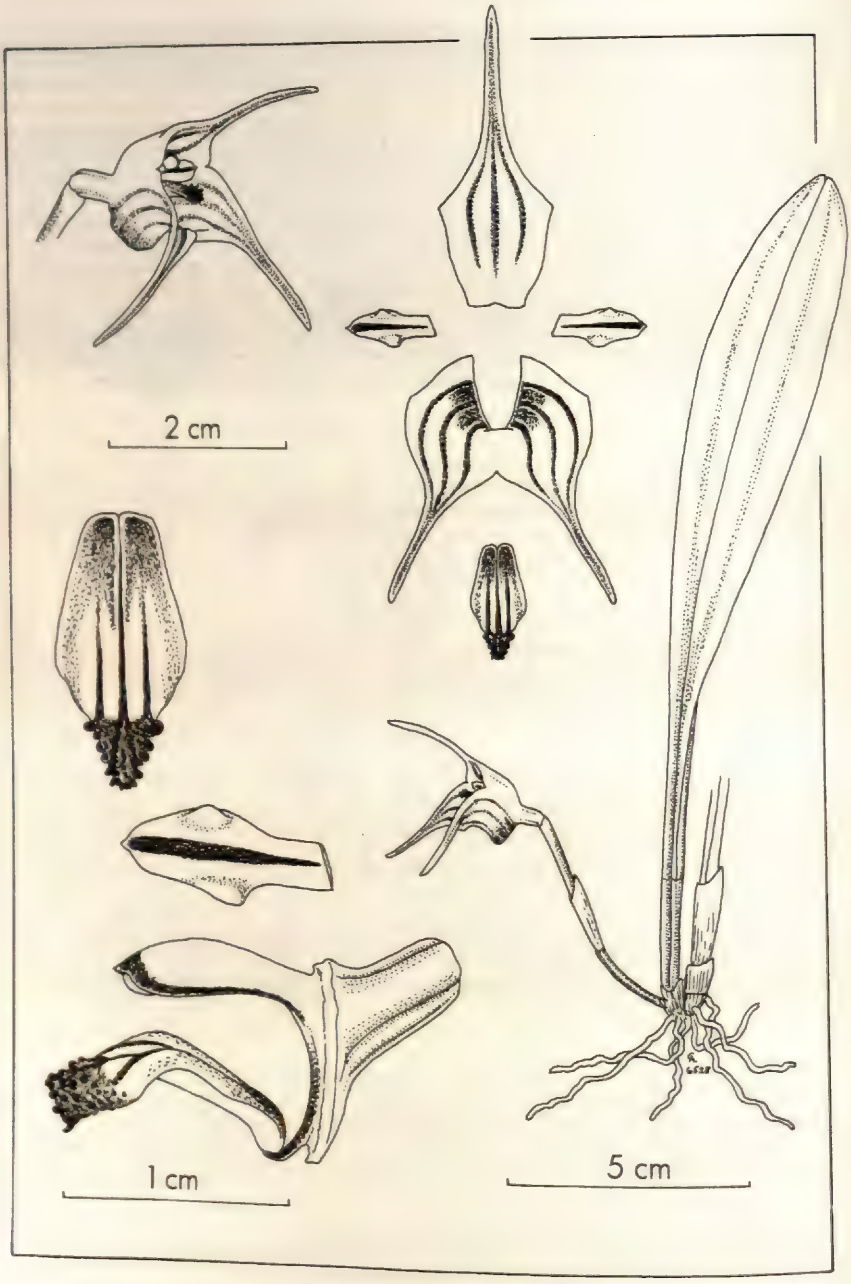


Plate 170. Masdevallia murex

Masdevallia oscarii Luer & Escobar, Orquideología 13: 175, 1979.

Ety.: Named in honor of the late Dr. Oscar Robledo R., of Medellín, Colombia, who, along with his wife Martha, cultivated this species successfully for many years.

Plant medium in size, epiphytic, caespitose; roots coarse. Ramicauls erect, stout, 1.5-2.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thickly coriaceous, 9-15 cm long including the petiole 2.5-5 cm long, the blade elliptical, subacute to obtuse, 2-2.5 cm wide, cuneate below into the petiole. **Inflorescence** a single flower borne by a stout, erect peduncle 1.5-2.5 cm long, with a bract at the base, from the low on the ramicaul; floral bract tubular, 1.2-1.5 cm long; pedicel 2.5-3 cm long; ovary 7 mm long; **sepals** fleshy, glabrous externally, shiny yellow-green, suffused and dotted with purple, densely purple-punctate and papillose within, each papilla with a short hair or bristle, the dorsal sepal obovate, 23-25 mm long, 15-17 mm wide expanted, connate to the lateral sepals for 15 mm to form a broad, cylindrical, sepaline tube, the apex subacute, contracted into a slender, forwardly drooping, greenish tail ca. 4.5 cm long, the lateral sepals ovate, oblique, 25 mm long, 13 mm wide, connate for 16-18 mm, the apices subacute, contracted into descending tails similar to that of the dorsal sepal; **petals** thick, white, mottled with purple along the 3 veins, oblong-subpandurate, 8 mm long, 3 mm wide, obliquely elliptical above the narrowing below the middle, the apex obtuse; **lip** diffusely dotted with purple on cream, oblong, 8.5 mm long, 5 mm wide, the apical portion acuminate with revolute margins, obtuse, densely echinate, the basal three-fourths oblong, shallowly sulcate, the base subtruncate, hinged beneath; **column** green marked with purple, semiterete, 8 mm long, the foot 6 mm long, with an incurved extension.

COLOMBIA: **Chocó**: Munic. de San José del Palmar, alt. 1800-2000 m, collected by J. M. Serna in 1967, cultivated by M. & O. Robledo at La Ceja, *R. Escobar 849* (Holotype JAUM); same collection, cultivated 14 Oct. 1977, *C. Luer 2027* (SEL); cultivated 17 Apr. 1988, *C. Luer 13234* (MO).

This rare species is known only from the three plants originally collected in 1967 by the late J.M. Serna. *Masdevallia oscarii* is indistinguishable vegetatively from most of the other species of the section. The large, fleshy flower is borne by a short peduncle. The interior of the sepals is densely studded with purple papillae, and each is topped with a short hair or bristle. The thick petals are constricted below the middle and marked with purple spots in three rows. The apex of the large, thick lip is covered by a mass of short spicules.

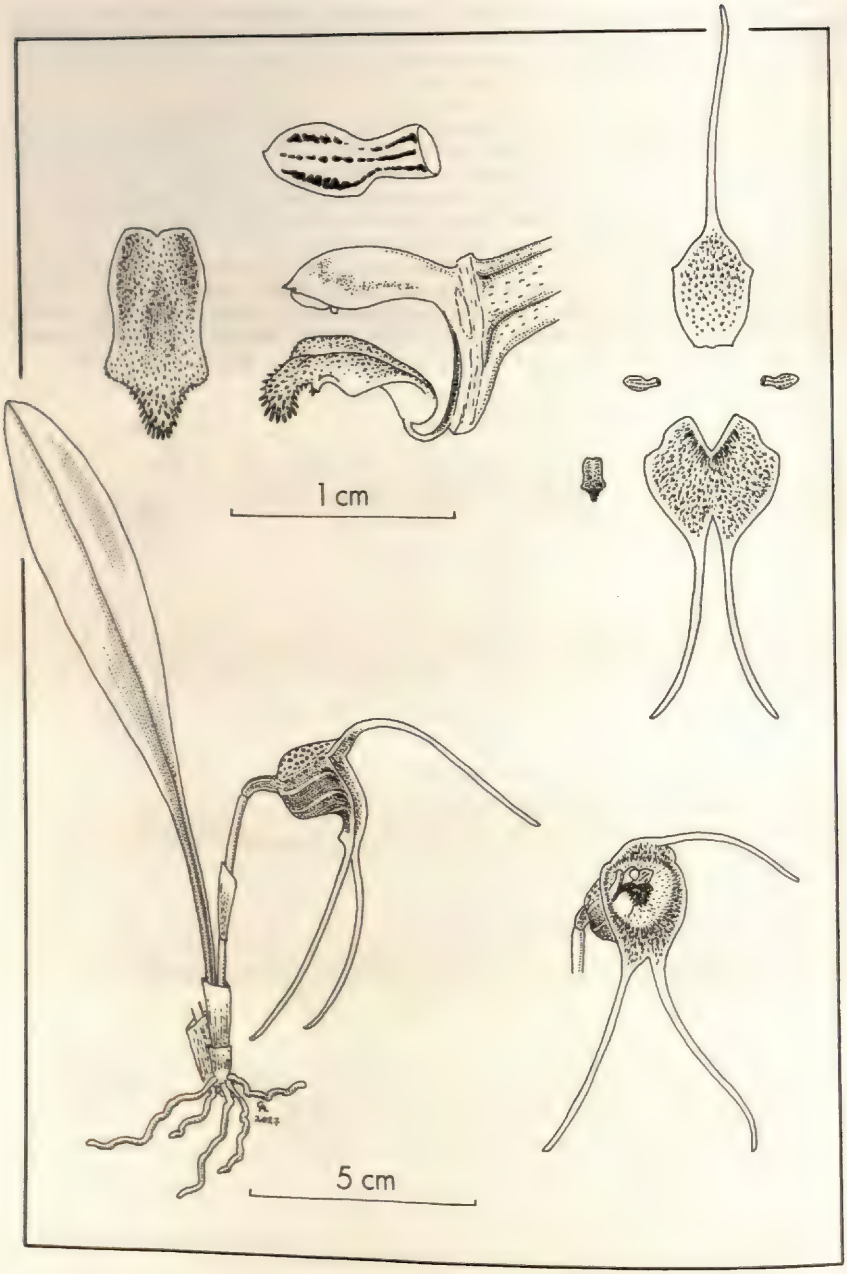


Plate 171. Masdevallia oscarii

Masdevallia pachyantha Rchb.f., Gard, Chron. n.s., 21: 174, 1884.

Ety.: From the Greek *pachyanthos*, "a thick flower," referring to the texture of the flower.

Syn.: *Masdevallia hoppii* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 27: 24, 1922.

Ety.: Named in honor of the collector, W. Hopp.

Syn.: *Masdevallia pachyantha* var. *hoppii* (Schltr.) Kraezl. Beih. 34: 1-240, 1925.

Plant medium to large in size, epiphytic, caespitose; roots coarse. Ramicauls erect, stout, 3-6 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thickly coriaceous, petiolate, 10-16 cm long including the petiole 2-3 cm long, the blade elliptical, subacute to obtuse, 2-3 cm wide, suffused with purple beneath, cuneate below into the petiole. **Inflorescence** a solitary flower, borne by a slender, ascending to suberect peduncle, 3-4 cm long, with a bract at the base, from low on the ramicaul; floral bract tubular, 1.5-2 cm long; pedicel 3-4 cm long; ovary green, 10 mm long; **sepals** yellow-green, densely dotted with red-purple along the veins, variously flecked and suffused between the veins, especially on the lateral sepals, fleshy, glabrous externally, minutely verrucose-pubescent within, the blade of the dorsal sepal ovate, 20-23 mm long, 15-18 mm wide, connate to the lateral sepals for 5-8 mm to form a broad, gaping, sepaline tube, the apex subacute, contracted into a stout, forwardly directed, yellow-green tail 2.5-3 cm long, the lateral sepals ovate, oblique, 28-35 mm long, connate 24-27 mm to form a lamina 28-33 mm broad, forming a broad mentum with the column-foot, the apices obtuse, contracted into descending tails 2-2.5 cm long, similar to that of the dorsal sepal; **petals** white with purple midvein, cartilaginous, elliptical, subunguiculate, acute, 9.5 mm long, 4 mm wide, both halves thickened, slightly concave centrally, the labellar margin obtusely angled near the middle; **lip** red-purple to brown, thick, obovate, 14 mm long, 6.5 mm wide, the apex broadly rounded, verrucose, the disc shallowly sulcate between low, longitudinal, verrucose calli, the base subcordate, hinged below; **column** greenish white with purple margins, semiterete, 10 mm long, the foot 7 mm long, with an incurved extension.

COLOMBIA: **Cauca**: cultivated by Veitch, collected near Popayán, 1883, by *Cross s.n.* (Holotype: W); western slopes of the Central Cordillera above Popayán, alt. 3000-3500 m, 2 Sept. 1881, *F.C. Lehmann 870* (BM, BR, G); Páramo de Delicias, alt. 3000-3300 m, May 1878, *F.C. Lehmann 6750* (AMES, K, NY, W); Páramo de Moras, alt. 3000 m, 29 Oct. 1882, *F.C. Lehmann 2062* (BM, BR, G); Páramo de Guanacas, alt. 3000-3600 m, 16 Mar. 1884, *F.C. Lehmann 4126, 4205* (G); Alto Obispo, 8 Nov. 1882, *F.C. Lehmann 4133* (G); Páramo de Barbillas, alt. 3150 m, 14 Nov. 1982, *C. Luer, J. Luer, R. Escobar & A. Lehmann de Sarria 8369* (MO, SEL). **Nariño**: Daza, northwest of Pasto, alt. 3000 m, Jan. 1922, *W. Hopp 141* (holotype of *M. hoppii*: presumably destroyed at B); "Paletara," alt. 3100-3300 m, 15 June 1922, *F. W. Pennell 6990* (AMES, NY).

This species is locally abundant in subparamo forests of southern Colombia. Reichenbach first received from Veitch a flower collected for him by his collector Cross but without collection data. Its existence had been communicated to Reichenbach by letter from Lehmann long before. Numerous localities around Popayán and Pasto are listed by him in Woolward's monograph. Fresh flowers as well as living plants gathered by Carder from the Cauca valley near Popayán were forwarded to Reichenbach by Shuttleworth in 1883.

Masdevallia pachyantha is distinguished by the large, thickly coriaceous leaves and a large, fleshy flower borne by a short peduncle with a longer pedicel. The colors and size are variable among the many populations. The sepals are shallowly connate into a gaping tube; the petals are obtusely swollen on the lower margin; and the lip is oblong and verrucose at the obtuse apex.

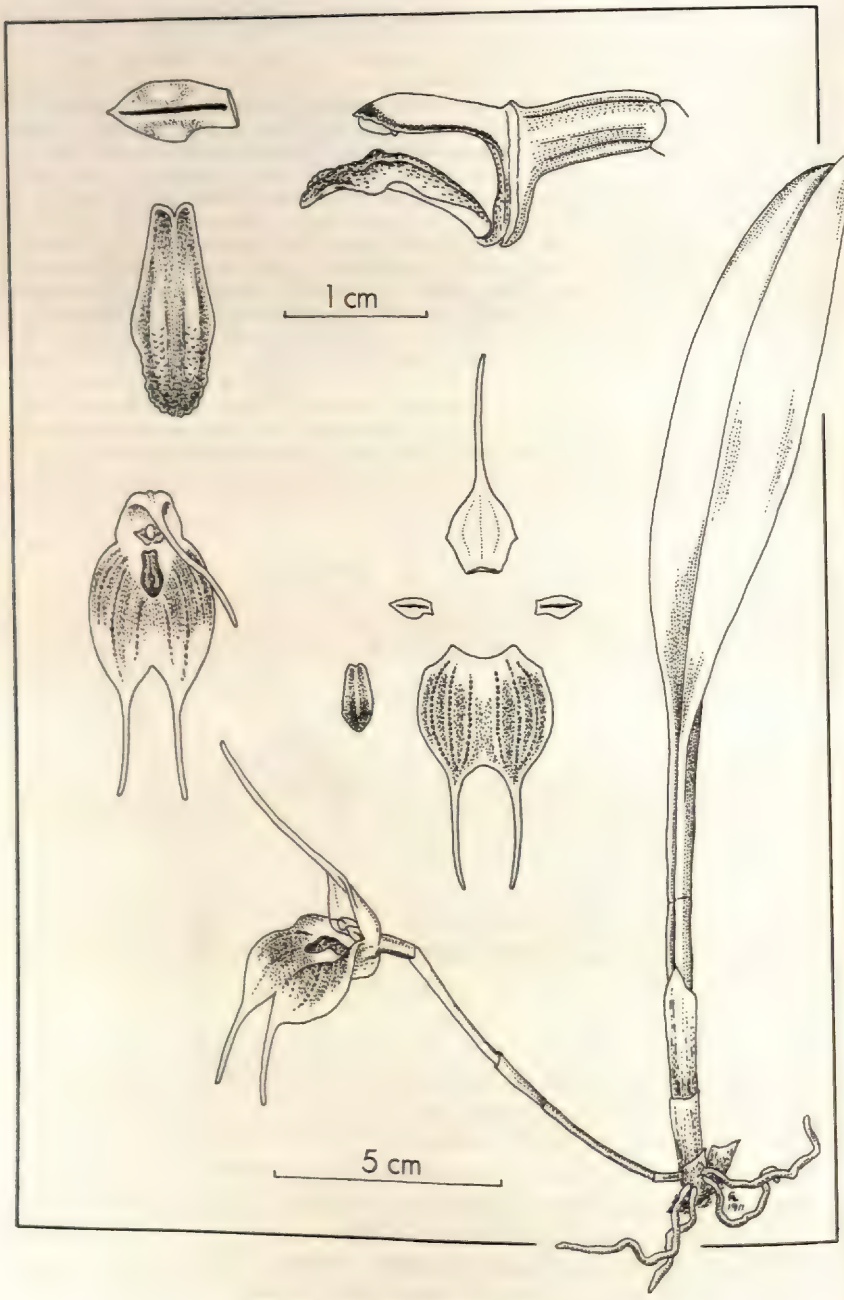


Plate 172. Masdevallia pachyantha

Masdevallia pachysepala (Rchb.f.) Luer, Lindleyana 9: 245, 1995.

Bas.: *Masdevallia elephanticeps* var. *pachysepala* Rchb.f., Bonplandia 2: 283, 1854.

Ety.: From Greek *pachysepalon*, "with thick sepals," referring to the fleshy corolla.

Plant large, epiphytic, caespitose; roots coarse. Ramicauls erect, stout, 3-5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thickly coriaceous, up to 28 cm long including the petiole 3-5 cm long, the blade oblong, obtuse, up to 4 cm wide, narrowed below into the channeled petiole. **Inflorescence** a huge, solitary, fleshy flower borne by a stout, erect to suberect peduncle, 8 cm long, with a bract near the base, from low on the ramicaul; floral bract loose, tubular, 3 cm long; pedicel flecked with maroon, stout, 7 cm long; ovary 12 mm long; **sepals** rigidly fleshy, minutely verrucose within, the dorsal sepal pale brown with rose veins, the blade broadly ovate, ca. 30 mm long, 20 mm wide, connate to the lateral sepals for 16 mm into a broad, cylindrical, sepaline tube, the free portion triangular, with the broadly acute apex contracted into a thick, erect, yellow tail ca. 9 cm long, the lateral sepals light brown, suffused with reddish black below the middle but above the base, connate 30 mm into a deeply bifid lamina 35 mm wide, each sepal ovate, oblique, 110 mm long, 15 mm wide at the bifurcation, acute, gradually attenuated to the tip, connate at the base ca. 10 mm to the column-foot to form a mentum; **petals** white with a purple midvein, cartilaginous, elliptical-oblong, subacute, 11 mm long, 5 mm wide, longitudinally thickened on both halves; **lip** dark purple, thick, rigid, oblong-obovate, 14 mm long, 8 mm wide, the disc sulcate, diffusely verrucose, the apex rounded, minutely denticulate, the base subcordate with obscure, nectariferous recesses, hinged on the end; **column** pale yellow with purple margins, semiterete, 9 mm long, the foot thick, equally long, with a short, stout, incurved extension.

COLOMBIA: **Santander de Norte**: Old dept. of Ocaña: La Cruz, alt. 3170 m, 1851, *L. Schlim 410* (Holotype: W; Isotypes: B, BR, G, K, P); Pericos, alt. 7,000 ft., *J. Warszewicz s.n.* (W).
VENEZUELA: **Táchira**: around La Fundación, Río Quinimarí, alt. 1700 m, 16 May 1951, *J. Renz 7022* (BAS); Páramo de Tamá, headwaters of Río Táchira, alt. 2400-2500 m, May 1967, *G.C.K. Dunsterville 57* (SEL), C. Luer illustr. 8161.

This huge-flowered species first came to attention from the preserved flower and painting Reichenbach had received from Wagener in 1854, but without a locality. Although obviously related to *M. elephanticeps*, it differed in the broad tails of the lateral sepals that were not deeply connate into a broad synsepal. Reichenbach described it as *M. elephanticeps* var. *pachysepala*, and cited *Schlim 410*, a specimen from Ocaña in the Eastern Cordillera of Colombia, as the type.

This species has been confused with *M. elephanticeps* since its discovery. *Schlim 410*, the type of var. *pachysepala*, has been identified as *M. elephanticeps* in several herbaria. *Masdevallia pachysepala* occurs rarely in the páramo of westernmost Venezuela and the adjoining páramo of Colombia, and it is not known to have been in cultivation in this century. It has also been confused with *M. mooreana*, having been identified as such by Woolward in her monograph of the nineteenth century.

Masdevallia pachysepala is distinguished from *M. elephanticeps* by the deeply bifid synsepal that terminates with broad, long-tapering tails. The free portions are much longer than the connate portions. The synsepal of *M. elephanticeps* is deeply connate into a wide, conspicuous lamina that terminates in narrower, shorter tails. The free portions of the lateral sepals are shorter than the connate portions.

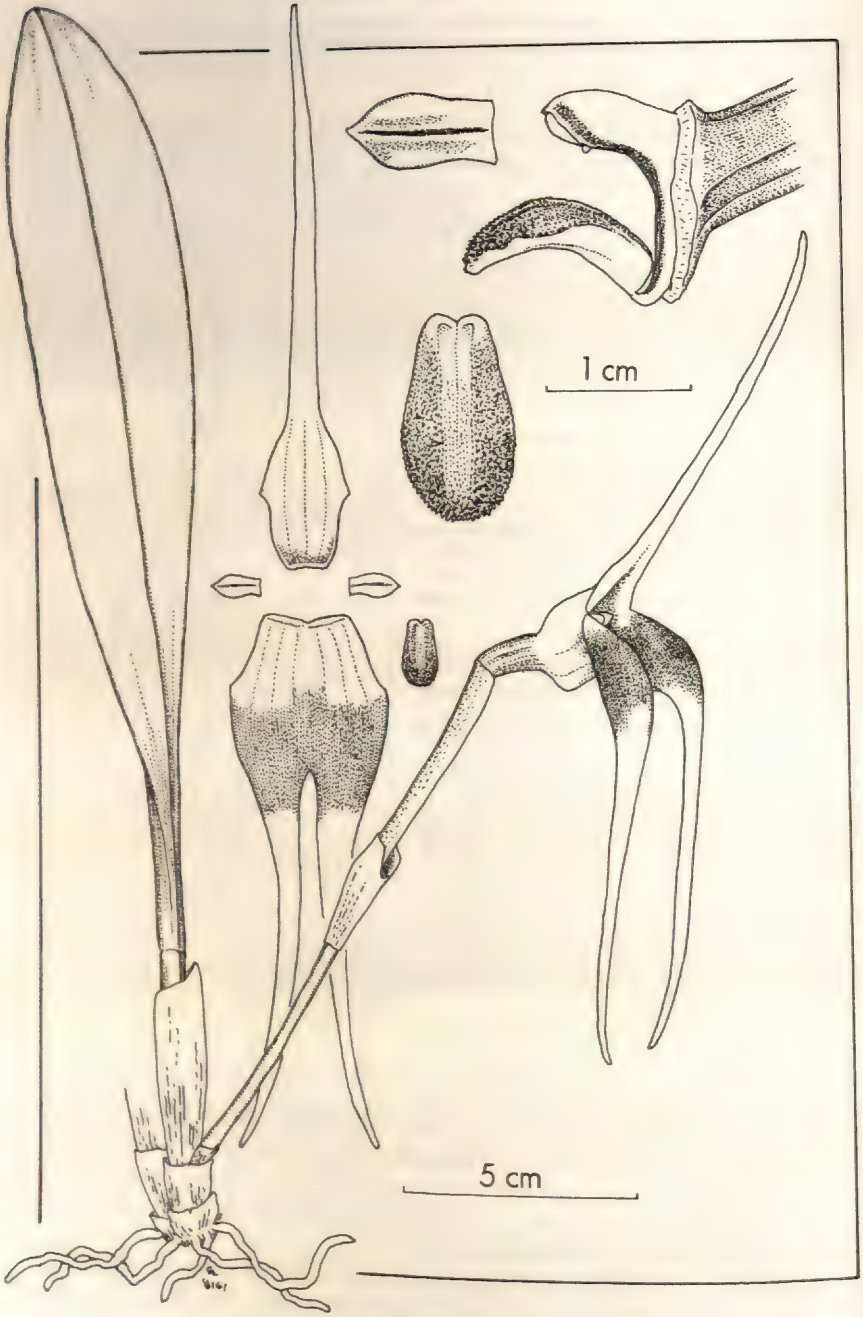


Plate 173. Masdevallia pachysepala

Masdevallia pardina Rchb. f., Otia Bot. Hamburgensia 1: 15, 1878.

Ety.: From the Latin *pardinus*, "like a panther," referring to the spotted flowers.

Syn.: *Masdevallia aequatorialis* Lehm. & Kraenzl., Repert. Spec. Nov. Regni Veg. 17: 427, 1921.
Ety.: Named for Ecuador, the country of origin of the specimen.

Plant large, robust, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 4-8.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect to suberect, thickly coriaceous, 15-30 cm long including the indistinct petiole 2-4 cm long, the blade narrowly linear-obovate, obtuse, 2-3.5 cm wide, gradually narrowed below to the subpetiolate, channeled base. **Inflorescence** a solitary flower borne by a stout, suberect peduncle 4-6 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 18-20 mm long; pedicel 3-5 cm long; ovary 8-10 mm long, dotted with purple; **sepals** fleshy, dull white to light green, dotted with purple along and between the veins, glabrous with the veins prominent externally, minutely verrucose with a short, red pubescence within, the dorsal sepal obovate, 25 mm long, 10-12 mm wide, connate to the lateral sepals for 12-15 to form a cylindrical tube, the triangular free portion contracted into a greenish tail 3-4 cm long, the lateral sepals obovate, 35 mm long, connate 25 mm into a bifid lamina 25 mm wide, the free portions triangular, acute, contracted into tails 3-3.5 cm long; **petals** cartilaginous, white, marked with dark red-purple, oblong, unguiculate, 12 mm long, 4 mm wide, the apex acute, the lower margin callous ending in a smooth, round callus between the middle and lower thirds above the claw; **lip** thick, white, heavily spotted with purple, elliptical, 14 mm long, 6 mm wide, the apex rounded, verrucose, denticulate, the disc with a low pair of parallel calli near the middle, the base subcordate, shallowly cleft, with elevated margins, hinged below; **column** white, edged in red-purple, semiterete, 9 mm long, the foot spotted, equally long with an incurved extension.

COLOMBIA: Without locality, collected by *J.H. Chesterton s.n.* (Holotype: W). **Nariño**: Pasto, Cranja de Botana, alt. 2900-3100 m, 3 Mar. 1963, *L.E. Mora 2583* (AMES, PSO). **Putumayo**: Alta de Cruz above Encano, páramo, alt. 11,000 ft., 1 Nov. 1946, *M.B. Foster & R. Foster 2035* (AMES).
ECUADOR: Without locality, collected by *F.C. Lehmann s.n.* (holotype of *M. aequatorialis*: W). **Carchi**: above San Gabriel, alt. 3400 m, 8 Nov. 1982, *C. Luer & R. Escobar 8302* (MO, SEL); between Julio Andrade and El Carmelo, alt. 2900-3200 m, 7 Aug. 1989, *H. van der Werff & E. Gudiño 10966* (MO); epiphytic in scrub cloud forest southeast of Tulcán toward El Carmelo, alt. 3000-3200 m, 23 Feb. 1978, *C. Luer, J. Luer & A. Hirtz 2775* (SEL); same area, alt. 3200 m, 6 April 1985, *C. Luer, J. Luer, A. Hirtz & X. Hirtz 11127* (MO); El Mirador, alt. 3600 m, Aug. 1990, *A. Hirtz, X. Hirtz, J. Del Hierro & F. Sarmiento 4943* (MO); Estación Biológia Guandera, La Loma el Corazón, northeast of San Gabriel, alt. 3080-3600 m, 10 Dec. 1995, *J. L. Clark 1742* (MO; QCNE). **Sucumbíos**: epiphytic in forest above El Playón east of San Juán Andrade, alt. 3200 m, 5 Nov. 1979, *C. Luer, J. Luer & A. Hirtz 4677* (SEL).

This large, robust species is locally abundant in southern Colombia and northernmost Ecuador. A watercolor painting of this species by F.C. Lehmann, *t. 75*, is at Kew without an herbarium specimen. It is probable that Lehmann's specimen at W (Vienna) was his subject for his *t. 75*.

The habit of *M. pardina* is similar to that of *M. angulata*, although some plants attain a greater size. The flowers of *M. pardina* are borne suberect, not descending, and they are a little smaller than those of *M. angulata*, with narrower sepals and tails. Instead of the typical single purple stripe on the petals as seen in *M. angulata*, the petals are spotted with purple. The lip is oblong with the obtuse apex verrucose.

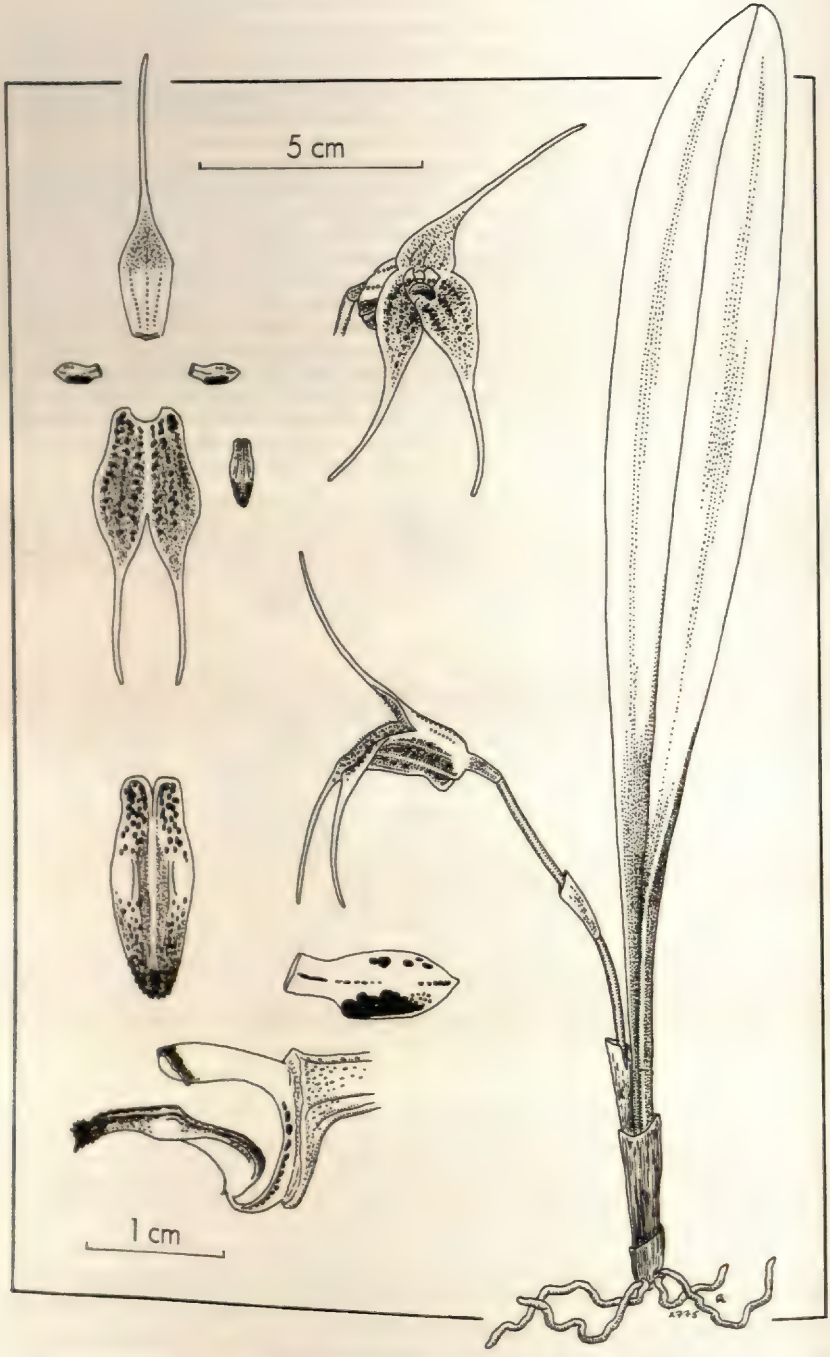


Plate 174. Masdevallia pardina

Masdevallia peristeria Rchb.f., Gard. Chron. n.s., 1: 500, 1874.

Ety.: Named for *Peristeria elata* Hook. because of the similarity of the white column flanked by white petals, "something comparable to the form of a dove."

Syn.: *Masdevallia ellipes* Rchb.f., Linnaea 41: 11, 1877.

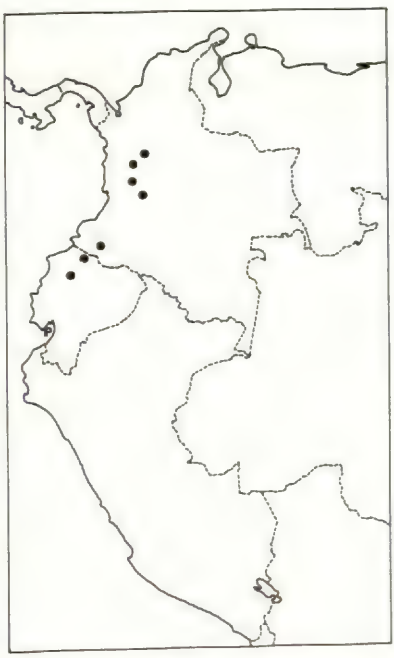
Ety.: From the Greek *ellipes*, "an omission," possibly alluding to his thoughts.

Syn.: *Masdevallia haematosticta* Rchb.f., Flora 69: 559, 1886.

Ety.: From the Greek *haematostictos*, "with blood-red dots," referring to the yellowish flowers diffusely dotted with red.

Syn.: *Masdevallia peristeria* Rchb. f. subsp. *haematosticta* (Rchb.f.) Luer, Lindleyana 3: 44, 1988.

Plant medium in size, epiphytic to terrestrial, caespitose; roots coarse. Ramicauls stout, erect, 3-6 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thickly coriaceous, 8-16 cm long, 1.5-2.5 cm wide, the blade oblong-elliptic, obtuse, gradually narrowed below into an indistinct petiole up to 3 cm long. **Inflorescence** a solitary, fleshy, malodorous flower borne by an erect to suberect peduncle 1-2 cm long, from low on the ramicaul; floral bract loose, 1-2 cm long; pedicel stout, 2-3.5 cm long; ovary green, lightly pitted, 7-12 mm long; **sepals** thick, rigid, light yellowish, diffusely dotted with red-purple or brown, smooth externally with prominent veins, minutely verrucose within, the dorsal sepal ovate, 22-25 mm long, 14-20 mm wide, connate to the lateral sepals for 12-16 mm to form a broad, cylindrical, sepaline tube, the free portion triangular, the apex subacute, contracted into a slender, erect, yellow-green tail 2.5-5 cm long, the lateral sepals ovate, oblique, connate 8-17 mm, 20-25 mm long, 11-30 mm wide, with the apices acute, tapered into tails similar to that of the dorsal sepal; **petals** yellow-green, cartilaginous, oblong, oblique-sigmoid, obtuse, 10-12 mm long, 3-4 mm wide, narrowed in the basal fourth below an obtuse marginal angle; **lip** thick, cartilaginous, dull dull yellow, diffusely dotted or flecked with purple, obovate, 12-13 mm long, 6-8 mm wide, shallowly sulcate centrally between low, longitudinal, verrucose calli, the apex obtuse, verrucose, the base subcordate with a pair of shallow, nectariferous angles, hinged beneath; **column** greenish white, semiterete, 9-10 mm long, the foot nearly as long, with an incurved extension.



COLOMBIA: without locality, imported by Messrs. Veitch, 1873, collected by *G. Wallis s.n.* (Holotype: W); without collection data: imported and cultivated by F. Sander & Co., *F.C. Lehmann s.n.* (holotype of *M. haematosticta*: W). **Antioquia**: "Medellín," *B. Roezl s.n.* (holotype of *M. ellipes*: W). **Antioquia**: Frontino, alt. 1400-1800 m, Oct. 1891, *F.C. Lehmann 7015* (AMES, K, LE); Musinga, alt. 1850 m, Nov. 1975, collected by R. Escobar et al., cultivated by M. & O. Robledo at La Ceja, 13 Oct. 1977, *C. Luer 2013* (SEL); Río Negro, Río Piedras, alt. 2150 m, 29 Apr. 1983, *C. Luer, J. Luer. R. Escobar et al. 8863* (SEL); Don Diego, alt. 2280 m, 26 Apr. 1983, *C. Luer, J. Luer. R. Escobar et al. 8893* (SEL); between Urrao and Betulia, alt. 2200 m, 1 June 1995, *C. Luer, J. Luer, R. Escobar et al. 17699* (MO); Frontino, Alto de Cuevas, alt. 1250-1750 m, *R. Collejas et al. 6616* (HUA). **Risaralda**: Pueblo Rico, Cañon de Cuanza, alt. 2000 m, cultivated by M. & O. Robledo at La Ceja, 15 Oct. 1977, *C. Luer 2030* (SEL). **Nariño**: Pasto, near Cucuel and Pusosquer, alt. 1400 m, 31 July 1879, *F.C. Lehmann 150* (W); Ricaurte, 1 Nov. 1979, *C. Luer, J. Luer & A. Hirtz 4573* (SEL).

ECUADOR: **Carchi**: Páramo El Angel between Tulcán and Maldonado, alt. 2150 m, 1 Aug. 1985, *C.H. Dodson & A. Embree 16170* (MO); east of Maldonado, alt. 1600 m, 16 Mar. 1991, *C. Luer, J. Luer, J. Del Hierro, A. & X. Hirtz 15097* (MO); between Maldonado and Chical, alt. 1400 m, collected July 1991, cultivated in Chamblee, GA, 15 Jan. 1993, by *F L Stevenson 92-1018-2* (MO). **Imbabura**: Selva Alegre, collected July 1991, cultivated in Chamblee, GA, Jan. 1994, by *F L Stevenson 94-0109-6* (MO). **Pichincha**: west slopes of Pichincha, collected by A. Andreetta, cultivated in Cuenca, 19 July 1977, *C. Luer 1747* (SEL); terrestrial in cloud forest humus above Tandapi, alt. 2000 m, 2 Feb. 1978, *C. Luer, J. Luer & A. Hirtz 2440* (SEL); above Tandapi, alt. 2400 m, collected by A. Andreetta, cultivated at Paute, Aug. 1990. *A. Hirtz 5042* (MO).

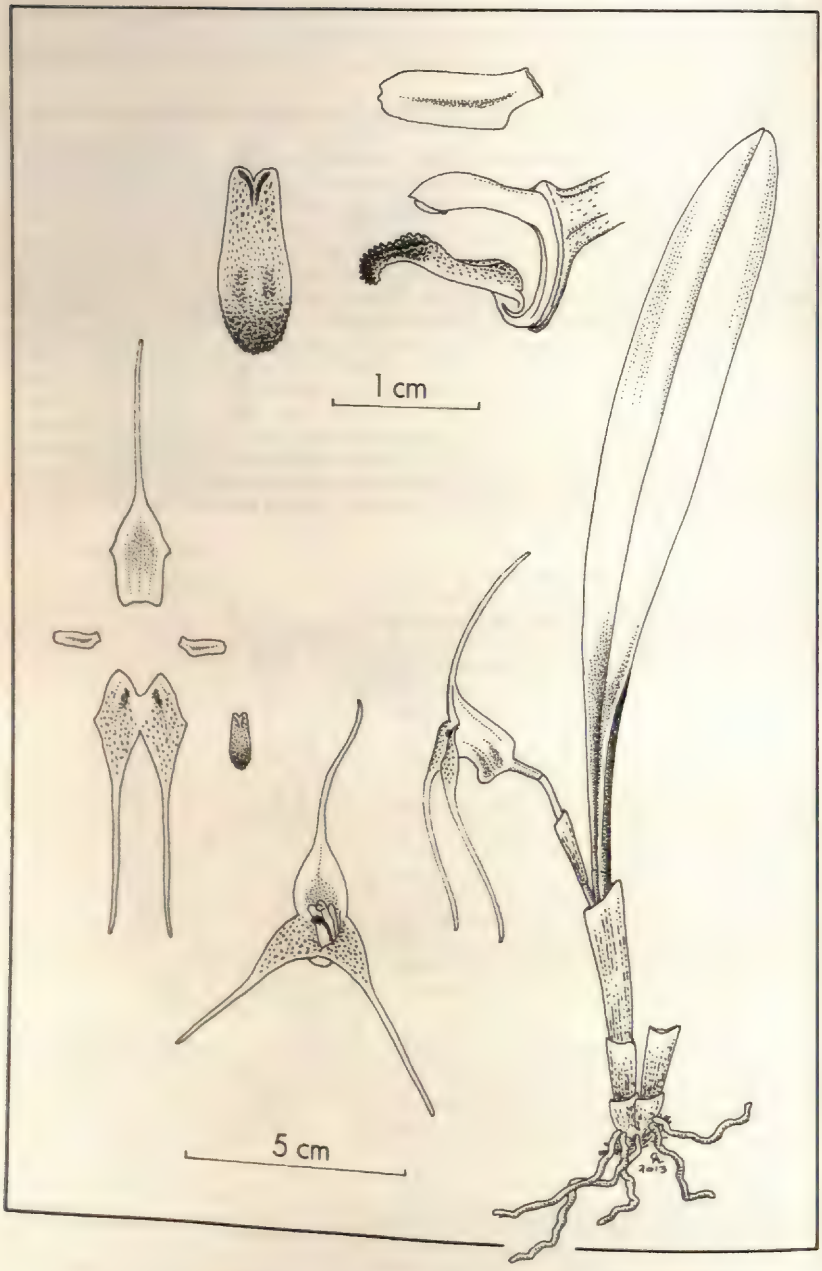


Plate 175. Masdevallia peristeria

This species is widely distributed and relatively frequent in the Western and the Central Cordillera of Colombia, ranging southward through the department of Nariño and into northwestern Ecuador. It was first collected by Gustav Wallis in the employ of Messrs. Veitch, and described by Reichenbach in 1874. It has proven to be variable in size and color. In 1877, Reichenbach described a single flower collected by Roezl as *M. ellipes*, and in 1886, he described a larger, darkly colored form collected by Lehmann as *M. haematosticta*. The latter is found in the southern half of the distribution, and intermixed with the smaller, paler form in the northern part of the Central Cordillera.

The species is characterized by thick, leathery leaves and a fleshy, solitary flower. The sepals are variously dotted with purple, and connate to near the middle into a cylindrical tube, beyond which the free portions often reflex with tails. The petals are obtuse and unguiculate on the basal quarter. The lip is thick, obovate and markedly verrucose.

Typical *M. peristeria* from the north is characterized by a smaller, brighter yellow, narrow sepaline tube with slender tails. Typical *M. haematosticta* is characterized by a larger and broader sepaline tube and thicker tails. The sepals are diffusely dotted with purple, intensely in *M. haematosticta*, and lightly in *M. peristeria*. An effort has been made to maintain two subspecies, but there are too many variations to consider.

The species grows commonly as a terrestrial on high grassy slopes. In Ecuador, it grows sympatrically with the locally abundant *M. angulata*.

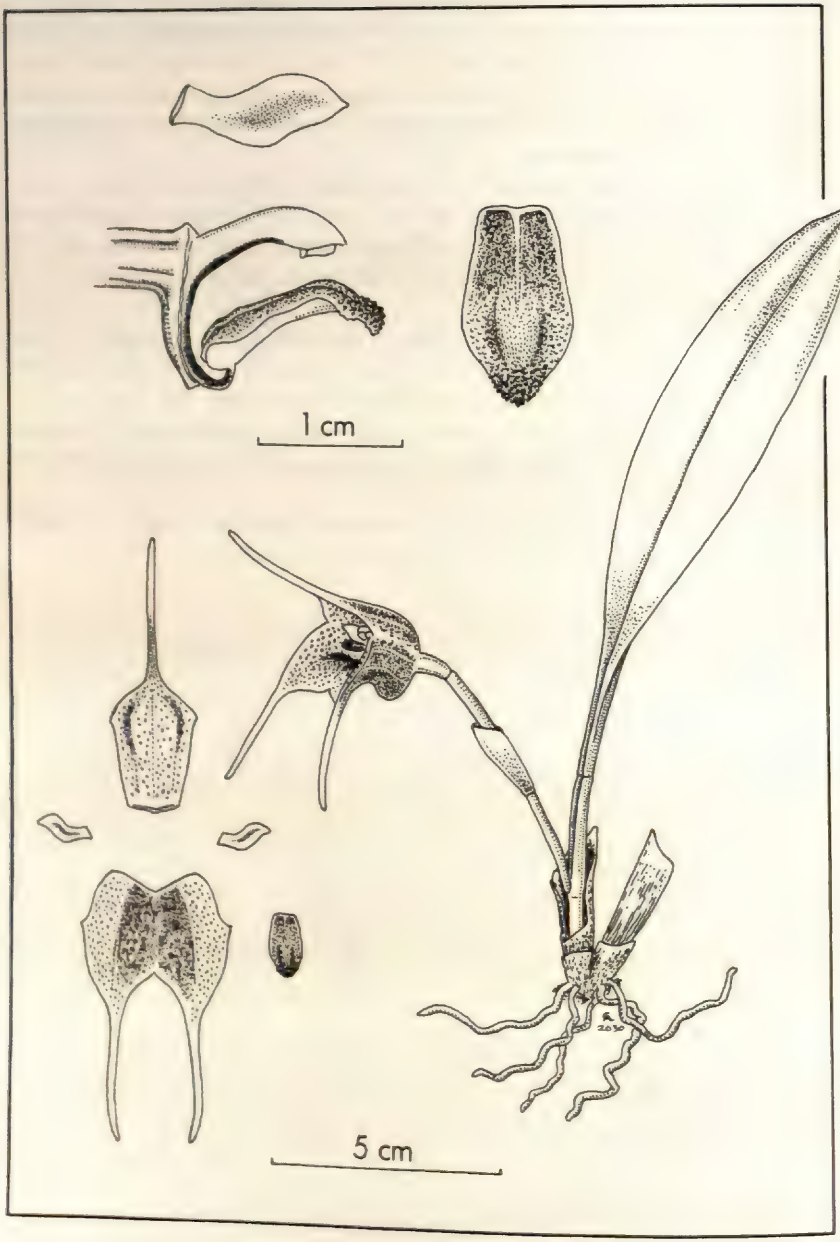


Plate 176. Masdevallia peristeria
(*M. haematosticta*)

Masdevallia picea Luer, Phytologia 44: 167, 1979.

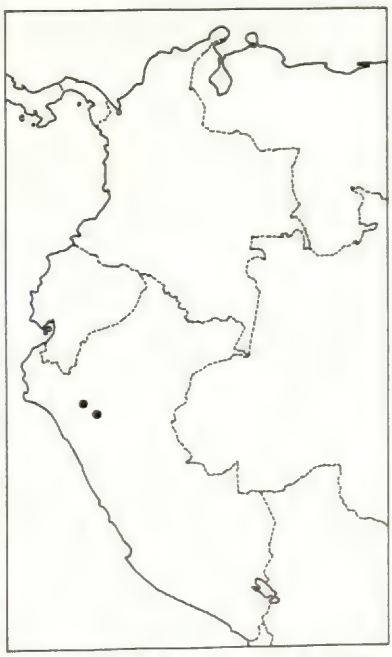
Ety.: From the Latin *piceus*, "pitch black," alluding to the dark apices of the sepals and tails.

Syn.: *Masdevallia rufolutea* Lindl., Warsz. Cat., 1853, et ex Gard. Chron. 292 et 528, 1855, *nomen nudum*.

Ety.: From the Latin *rufoluteus*, "reddish yellow," referring to the color of the flower.

Plant robust, medium in size to large, epiphytic, caespitose; roots coarse. Ramicauls erect, stout, 3-8.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thickly coriaceous, elliptical-oblong, subpetiolate, obtuse to rounded at the apex, 10-19 cm long, 1.5-2 cm wide, cuneate below into the channeled subpetiolate base. **Inflorescence** a solitary, mal-odorous flower, borne by a stout, suberect, purple-dotted peduncle 1.5-3 cm long, from low on the ramicaul; floral bract tubular, flecked with purple, 1.5-2 cm long; pedicel stout, flecked with purple, 2-3 cm long; ovary green, 5-8 mm long; **sepals** thick, fleshy, rigid, green, becoming increasingly spotted with dark red-purple that coalesces toward purple-black apices, shiny-glabrous externally, verrucose within, the blade of the dorsal sepal obovate, 26-27 mm long, 14-16 mm wide, connate to the lateral sepals for 15-17 mm to form a broad, cylindrical tube, the apex subacute, contracted into an erect, darkly colored tail 26-33 mm long, the lateral sepals ovate, oblique, 24-28 mm long, 15 mm wide, connate 17 mm to form a broad, deep mentum with the column-foot, the apices subacute, contracted into tails similar to that of the dorsal sepal; **petals** dull white, marked with red-purple, thick, oblong, 12 mm long, 5 mm wide, the apex obtuse to rounded, both sides thickened, the labellar margin thicker, obtusely angled near the middle; **lip** white, diffusely spotted with dark purple, thick, oblong, 15 mm long, 7 mm wide, the apex broadly rounded, verrucose and denticulate, the disc shallowly sulcate between a pair of thick, more or less longitudinal calli, the base subcordate, hinged beneath; **column** greenish white, semiterete, 10 mm long, the foot thick, 8 mm long, with a stout, incurved extension.

PERU: **Amazonas**: without locality, exported by R. Stümpfle of Lima, Peru, cultivated by M. & O. Robledo at La Ceja, Colombia, 29 Sept. 1977, *C. Luer 1865* (Holotype: SEL; Isotype: JAUM); same origin, cultivated by Black River Orchids, Mich., 8 Nov. 1977, *C. Luer 2124* (SEL); "sources of the Marañon," May 1853, *J.R. von Warszewicz s.n.* (holotype of *M. rufolutea*: K; isotype: W); Huancas, north of Chachapoyas, rocky cliffs, alt. 8,000 ft., collected by D. Welisch 15 June 1975, cultivated in San Francisco, CA, 21 June 1978, *C. Luer 2926* (SEL).



This species was included in a shipment of plants sent to England by Warszewicz in 1853 and offered for sale. In the sale's catalog, it was listed as *M. rufolutea*, attributed to Lindley. From the same lot, Reichenbach described *M. civilis* the following year. Because of the similarity of the two species, they were considered to be the same. However, the species with more or less yellowish, broadly cylindrical flowers alluded to as *M. rufolutea* is not the same as the species with a constricted tube more or less purplish and inflated above the base and described as *M. civilis*. Miss Woolward identified *M. picea* (*M. rufolutea*, a *nomen nudum*) as *M. civilis* in her monograph of 1896.

Masdevallia picea, no doubt a deep-purple color form of *M. rufolutea*, was described in 1979. Subsequently, yellowish color-forms have proved to be far more frequent than the deep-purple forms. The species is characterized by large, thick, coriaceous leaves and a rather large, fleshy flower borne by a short peduncle. The sepals are connate into a broad cylindrical tube with equally long tails. The petals are oblong and obtuse and the lip is also oblong with a verrucose apex.

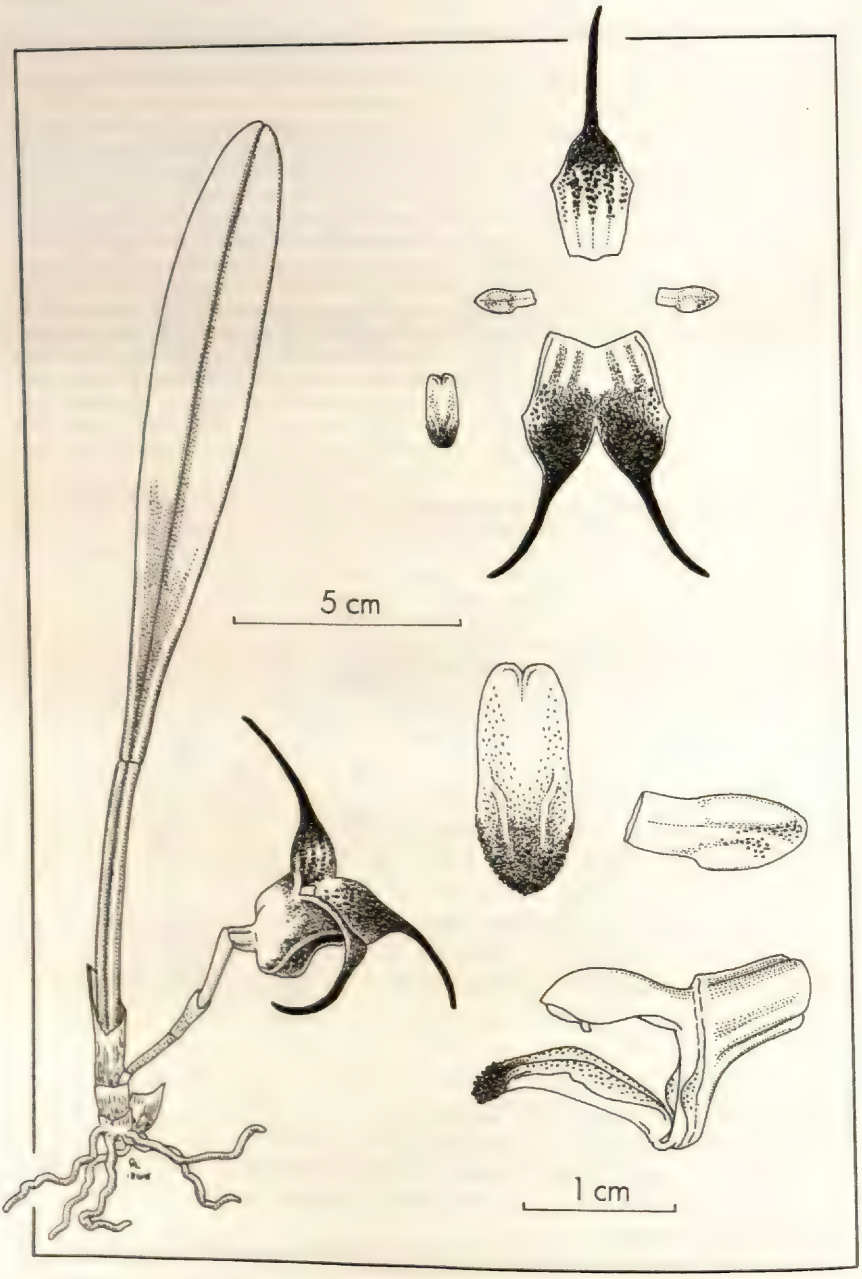


Plate 177. Masdevallia picea

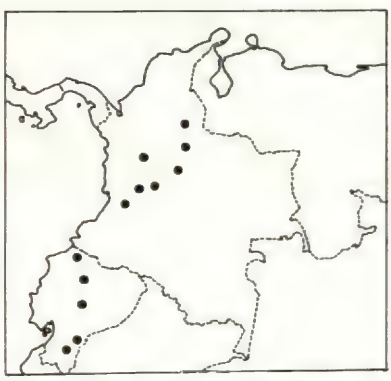
Masdevallia platyglossa Rchb. f., Gard. Chron. n.s., 18: 552, 1882.

Ety.: From the Greek *platyglossa*, "a broad tongue," referring to the large, broad lip.

Syn.: *Lothiania bilabiata* Kraenzl., Repert. Spec. Nov. Regni Veg. Beih. 34: 203, 1925.
Ety.: From the Latin *bilabiatus*, referring to the bilabiate flower.

Syn.: *Masdevallia bilabiata* (Kraenzl.) Garay, Orquideologia 5: 80, 1970.
Syn.: *Rodrigoa bilabiata* (Kraenzl.) Braas, Die Orchidee 30: 221, 1979.

Plant medium in size, epiphytic, caespitose; roots coarse. Ramicauls slender, erect, black, 2-3 cm long, enclosed by 2-3 loose sheaths. **Leaf** erect dark green, coriaceous, 6-14 cm long including the petiole 2-4 cm long, the blade narrowly elliptical, subacute, 1-2 cm wide, narrowly cuneate below into the slender, blackish petiole. **Inflorescence** a relatively large, fleshy, solitary flower borne by a descending peduncle 2-8 cm long, slender at the base, thicker toward the flower, with 2-3 bracts, from low on the ramicaul; floral bract 9-13 mm long, loose, enclosing the pedicel 5-10 mm long; ovary 4-5 mm long; **sepals** dull gray to dull gray-green, often dotted with black, the veins prominent externally, the dorsal sepal ovate, 22 mm long, 18 mm wide, connate to the lateral sepals for 8 mm to form a broad, short, sepaline cup, the free portion triangular with the acute apex produced into a 3-4 mm long tail, the lateral sepals 26 mm long, connate 15 mm to form a broadly ovate lamina 26 mm wide, concave basally and forming with the retrorse column-foot a deep mentum, the obtuse apices contracted into tails 2-3 mm long; **petals** light green, elliptical, 9.5 mm long, 4 mm wide, the labellar margin with an obtusely angled callus above the middle, the apex acute; **lip** white, suffused with green, thick, elliptical, 16 mm long 9.5 mm wide, the apex rounded, verrucose, the base truncate with the margins thin, erect, involute to form nectariferous recesses, hinged on the end; **column** white, semiterete, 7 mm long, the retrorse foot 10-11 mm long with a short incurved extension.



COLOMBIA: Without collection data: cultivated at Burford Lodge, England, 1882, by *Sir Trevor Lawrence s.n.* (Holotype: W); **Santander**: between Duitama and Virolín, alt. 2200 m, *C. Luer, R. Escobar & D. Portillo 8055* (SEL). **Boyacá**: between Arcabuco and Moniquirá, alt. 2500 m, 25 Apr. 1982, *C. Luer, J. Luer, R. Escobar & D. Portillo 7565* (SEL). **Cundinamarca**: Aguatita between San Miguel and Fusagasugá, alt. 1800 m, 8 June 1941, *J. Renz 3586* (BAS). **Antioquia**: Río Dolores, near Santa Rosa, alt. 1800-2000 m, Dec. 1891, *F.C. Lehmann 7039* (K). **Caldas**: Río Barbas between Pereira and Armenia, 22 July 1965, *R. Restrepo M s.n.* (COL). **Tolima**: Río Cabrera, alt. 2000 m, 9 Jan. 1888, *F.C. Lehmann 2334* (G). **Valle del Cauca**: west of Cali, alt. 2000 m, 28 Mar. 1884, *F.C. Lehmann 3761* (holotype of *Lothiania bilabiata*: G).
ECUADOR: **Carchi**: above Maldonado, alt. 2000 m, March 1983, *S. Dalström s.n.* (SEL). **Napo**: east slope of Volcán Reventador, alt. 1850 m, 11 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 11776* (MO). **Morona-Santiago**: Cordillera del Condor, alt. 1750 m, 21 May 1988, *C. Luer, A. Hirtz, W. Flores, A. Andreetta & W. Teague 13545* (MO). **Pastaza**: above Río Negro, collected by F. Freire, cultivated by M. & O. Robledo at La Ceja, *R. Escobar s.n.* (SEL). **Zamora-Chinchipe**: between Loja and Zamora, collected by B. Malo, cultivated at Tarqui, 4 May 1981, *C. Luer 6091* (SEL).

This "ugly duckling" among the majestic Masdevallias is relatively common in its wide distribution through Ecuador and all three cordilleras of Colombia. Although it often grows in the company of other species that may be abundant, it usually occurs as only a single plant. A painting of Lehmann's *7039* with the proposed name "M. macroglossa," a collection from Antioquia, Colombia, is at Kew. Kränzlin also annotated *Lehmann 7039* as *M. dermatantha*.

Plants in the wild are usually easily recognized when not in flower by the slender, black-petiolate leaves, and any evidence of old, descending, single-flowered peduncles, that are often present in fascicles. Plants in flower cannot be confused with anything else. The relatively large, gray-green, or dirty-green sepals are triangular with only minute tails. The petals are obtusely angled above the middle, and the lip is proportionately large and verrucose with a pair of "nectariferous-cavities" at the base.

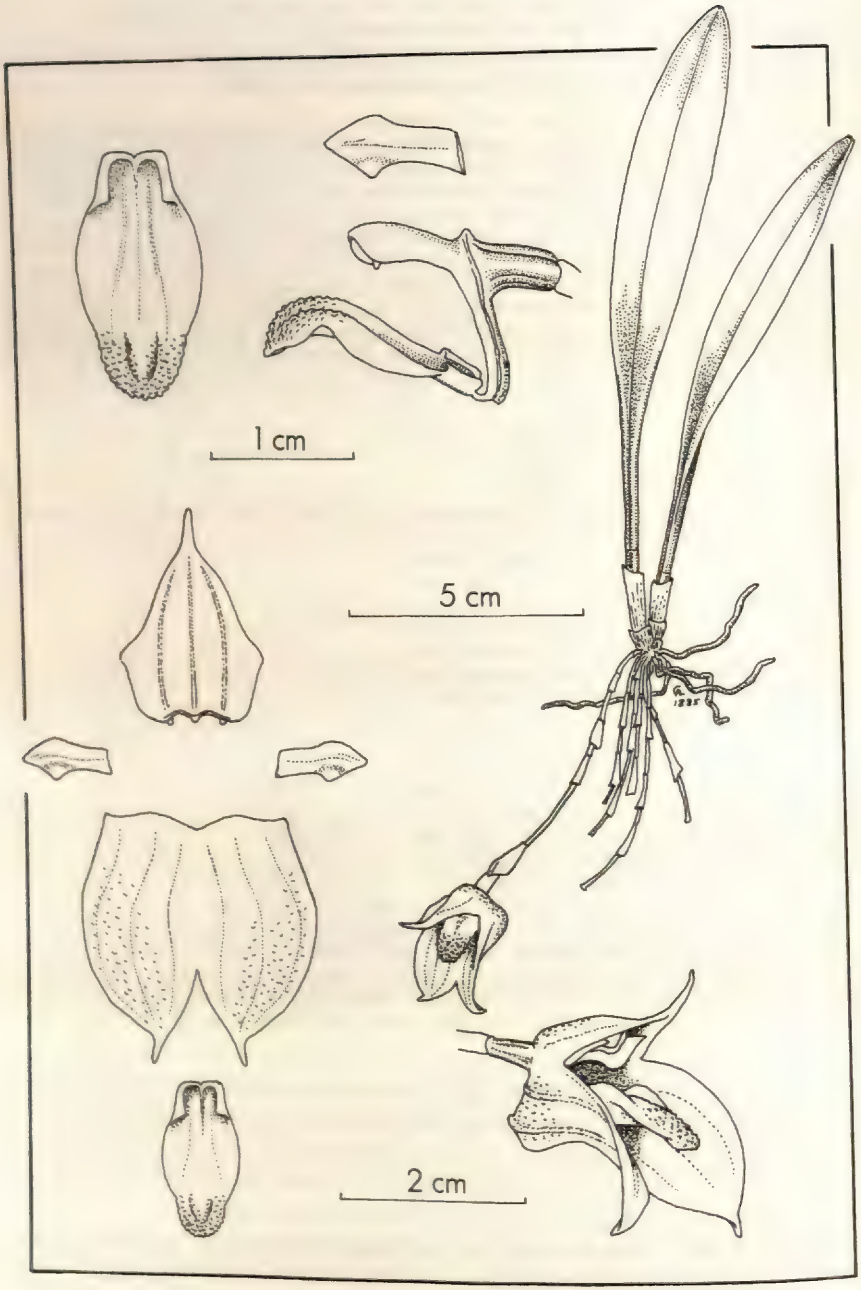


Plate 178. Masdevallia platyglossa

Masdevallia rigens Luer, Selbyana 5: 150, 1979.

Ety.: From the Latin *rigens*, "rigid," referring to the stiff vegetative and floral parts.

Syn.: *Masdevallia stercorea* Königer, Die Orchidee 31: 183, 1980; emend. 36: 87, 1985.
Ety.: From the Latin *stercoreus*, "foul-smelling," referring to the unpleasant odor of the flower.

Plant medium in size, presumably epiphytic, caespitose; roots coarse. Ramicauls erect, stout, 5-6 cm long, enclosed by 2-3 close, tubular sheaths. **Leaf** dull green, suberect, more or less arching, thickly coriaceous, rigid, narrowly elliptical-linear, 15-22 cm long, 1.5-1.8 cm wide, the apex narrowly obtuse, gradually narrowed to the subpetiolate or sessile base. **Inflorescence** a solitary flower, borne by a stout, suberect peduncle, 2-2.5 cm long, with a bract at the base, from low on the ramicaul; floral bract tubular, 10-13 mm long; pedicel 17-22 mm long; ovary greenish white with purple dots, 7 mm long; **sepals** light yellow-brown, lightly dotted with red, thick, rigid, glabrous externally, minutely pubescent-verrucose within, the blade of the dorsal sepal oblong-ovate, 16 mm long, 7-8 mm wide, connate to the lateral sepals 9-10 mm to form a cylindrical, sepaline tube, the apex subacute, contracted into a stout, erect to terete, recurved, yellow-green tail 18 mm long, the lateral sepals ovate, oblique, ca. 18 mm long, connate 9-10 mm to form a bifid lamina 11-13 mm broad, forming an obtuse mentum with the column-foot, the apices acute, acuminate into recurving tails similar to that of the dorsal sepal; **petals** white with purple midvein, cartilaginous, oblong, obtuse, bluntly apiculate, 7 mm long, 2 mm wide, both halves thickened, slightly concave centrally, the labellar margin obtusely angled below the middle; **lip** ivory, diffusely spotted with red-purple, thick, obovate, 8 mm long, 3.75 mm wide, the apex broadly rounded, verrucose, the disc shallowly sulcate between low, longitudinal, verrucose calli, the base subcordate, hinged below; **column** greenish white with purple margins, semiterete, 6 mm long, the foot spotted with purple, 3 mm long, with an incurved extension.

PERU: Without collection data: obtained from the greenhouse collection of the University of California at Berkeley, cultivated by Harold Ripley in San Francisco, CA, 20 Aug. 1979, *C. Luer 4088* (Holotype: SEL). **Cajamarca**: between Celendin and Balsas, alt. 300-600 m, 1979, *J. Meza T. M-78* (holotype of *M. stercorea*: SEL); same collection, cultivated by W. Königer in München, *W. Königer s.n.* (K, M, SEL); same collection, cultivated by W. Königer in München, Nov. 1979, *C. Luer 4857* (SEL).

This species, apparently endemic in a semi-arid valley in northern Peru, is closely related to *M. bonplandii* from higher altitudes. Both species are characterized by narrow, thickly coriaceous leaves, and a relatively small flower borne by a short ramicaul. From *M. bonplandii* it is distinguished by the narrow, butterscotch-colored, sepaline tube with longer, narrower tails. The petals and lips of the two species are very similar.

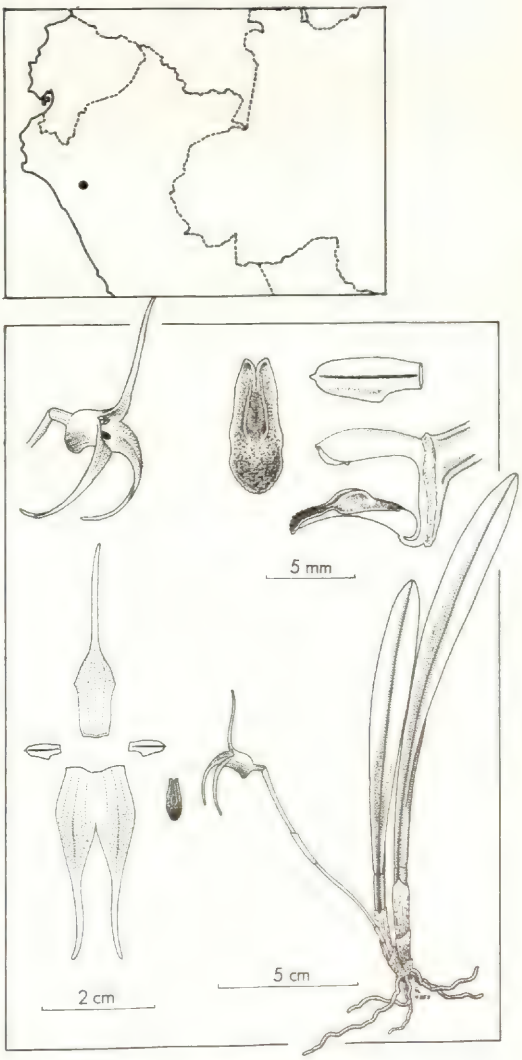


Plate 179. Masdevallia rigens (*M. stercorea*)

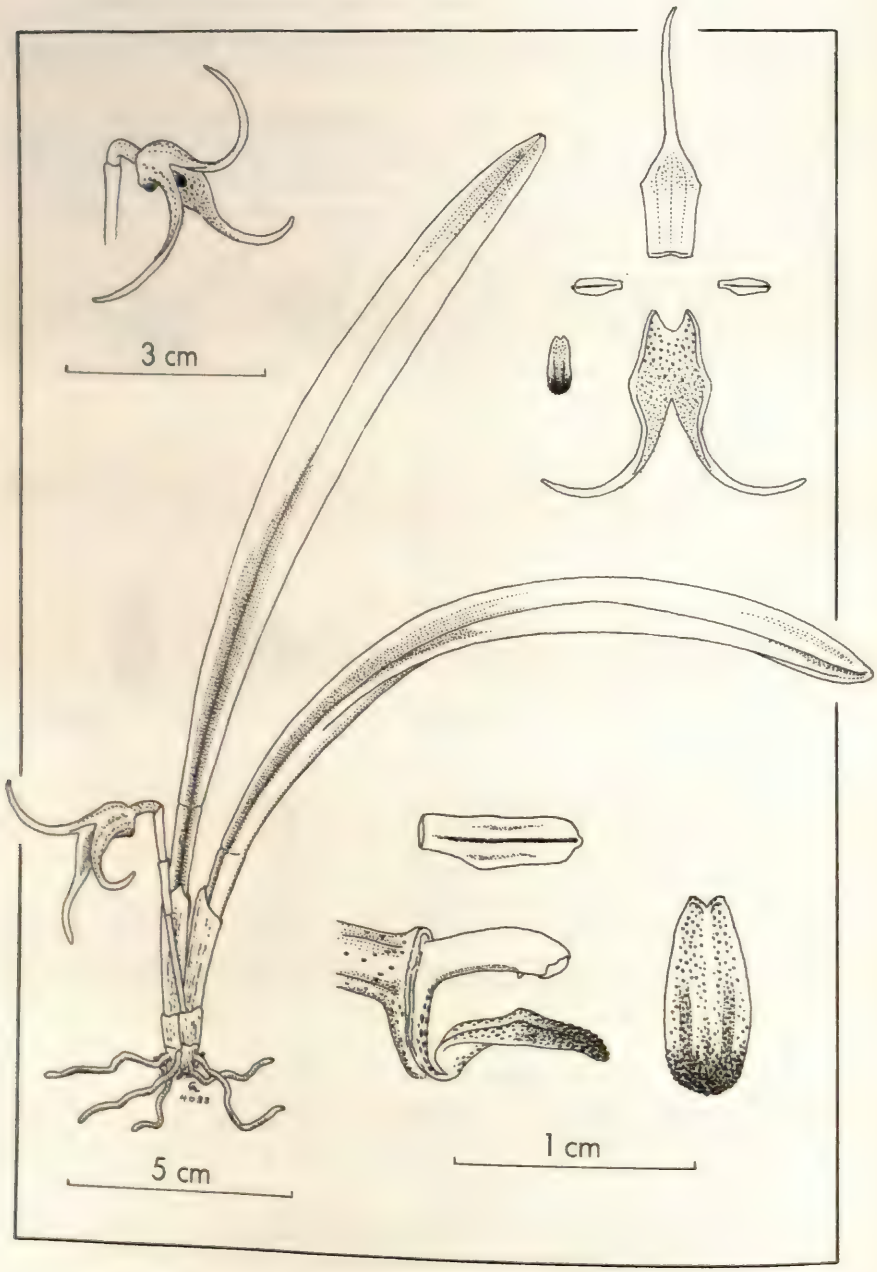


Plate 180. Masdevallia rigens

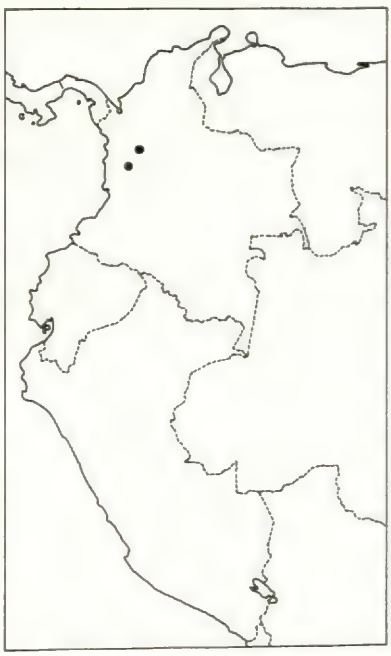
Masdevallia sanctae-rosae Kraenzl., Bull. Misc. Inform. 102, 1925.

Ety.: Named for the community of Santa Rosa near where this species was discovered.

Syn.: *Pleurothallis sanctae-rosae* (Kraenzl.) Garay, Orquideología 4: 17, 1969.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 1-2.5 cm long, with small, red papules, enclosed by 2-3 short, tubular sheaths, more or less spotted with red or with red papules. **Leaf** erect, coriaceous, 4-9.5 cm long including the petiole about the third of the length, the blade narrowly elliptical, acute, 4-6 mm wide, the base gradually narrowed into the long petiole. **Inflorescence** a single flower borne by a horizontal to ascending, slender peduncle 5-7 cm long, spotted with red, with a bract below the middle, from low on the ramicaul; floral bract tubular, 5 mm long; pedicel 10 mm long; ovary 3 mm long, dotted with purple; **sepals** translucent pale yellow-green, lightly dotted with red along the veins, glabrous, the dorsal sepal ovate, subacute, 6 mm long, 4.5 mm wide, connate to the lateral sepals for 1.75 mm into a campanulate, sepaline cup, the lateral sepals triangular-ovate, subacute, 5.5 mm long, 4 mm wide, connate 1.5 mm; **petals** translucent white, elliptical-oblong, acute, 5 mm long, 1.5 mm wide, slightly thickened along the labellar margin; **lip** cream, elliptical-ovate, 4.5 mm long, 2 mm wide, the apex subacute, lightly concave, lightly verrucose, with serrulate margins, the base subcordate, hinged beneath; **column** greenish white, semiterete, 3 mm long, the foot 2 mm long, with a short, incurved extension.

COLOMBIA: **Antioquia**: forests of Savareta, highlands of Santa Rosa, alt. 2400-2800 m, *F.C. Lehmann 7269* (Holotype: K; Isotypes: AMES, LE, NY); same area, without known collector, cultivated by M. & O. Robledo at La Ceja, 5 Oct. 1977, *C. Luer 1913* (SEL); forest remnant between Urrao and Betulia, alt. 2200 m, 1 June 1995, *C. Luer, J. Luer, R. Escobar et al. 17701* (MO).



This species, endemic in a small area of the Western Cordillera of Colombia, is related to the widely distributed species-complex of *M. campyloglossa*. The former was first discovered by Consul Lehmann, whose collection lay unidentified in Kew until described by Kränzlin when he described all the left-over scraps for his monograph of *Masdevallia*. *Masdevallia sanctae-rosae*, one of the least attractive species of the genus, is easily identified by the very slender leaves, and the very small, colorless, tailless flowers. Failing to recognize the generic characters of the petals and lip, and the obvious affinity to *M. campyloglossa*, Garay transferred the species to *Pleurothallis*.

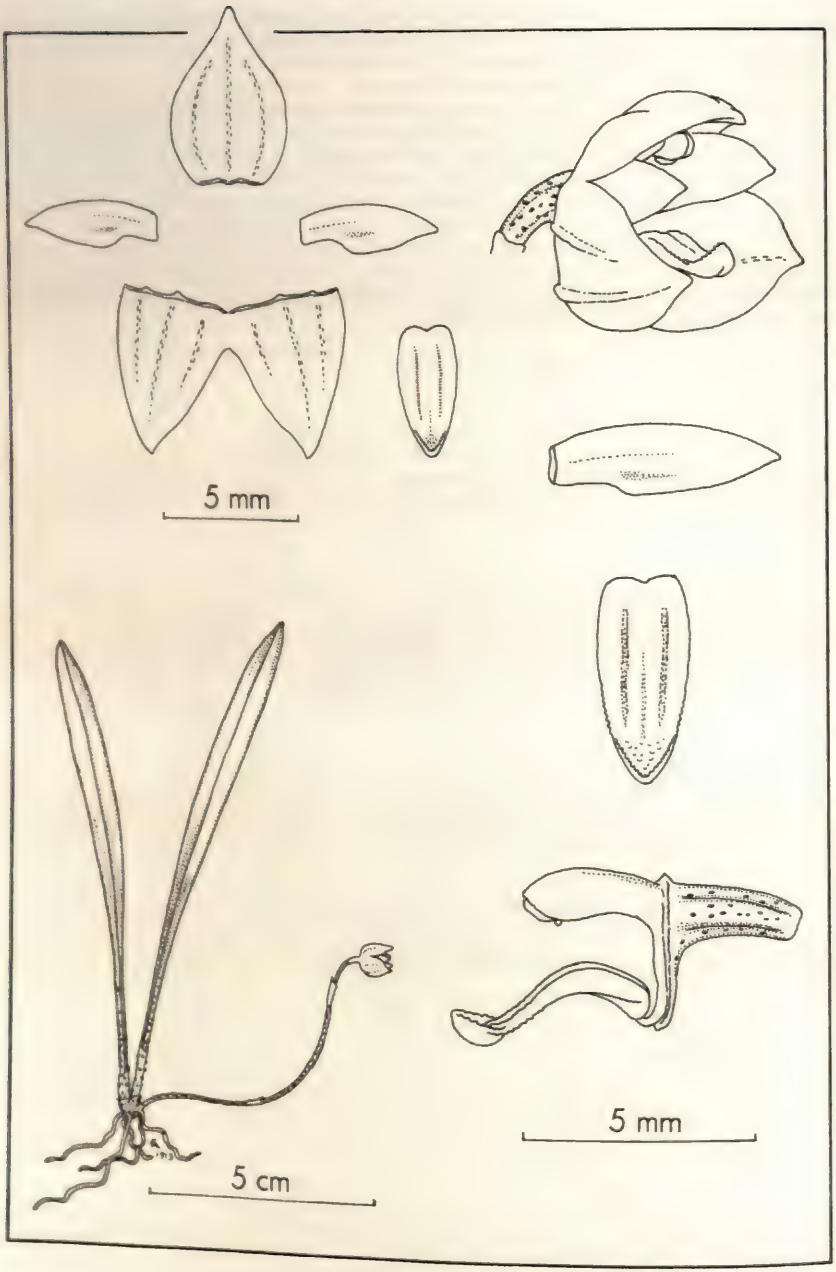


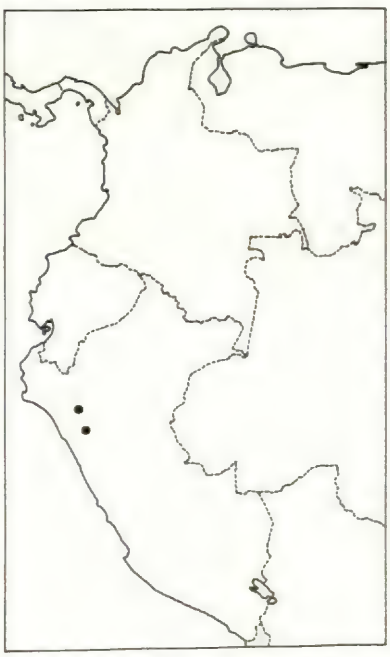
Plate 181. Masdevallia sanctae-rosae

Masdevallia semiteres Luer & Escobar, Selbyana 5: 154, 1979..

Ety.: From the Latin *semiteres*, "semiterete," referring to the narrowly cylindrical leaves.

Plant small to medium in size, terrestrial to lithophytic, densely caespitose; roots coarse. Ramicauls erect, stout, terete, 1.5-3 cm long, enclosed by 2-3 short, imbricating, tubular sheaths. **Leaf** erect to suberect, gray-green, fleshy, semiterete, sulcate, narrowly linear elliptical-obovate, acute, 4-12 cm long, 0.7-1 cm wide, 0.4-0.5 cm thick, gradually narrowed below into the epetiolate base. **Inflorescence** a solitary flower borne by a stout, suberect peduncle 1-1.5 cm long, with a bract above the base, from low on the ramicaul; floral bract 1 cm long; pedicel 1.5-2 cm long; ovary spotted with brown, 6-7 mm long; **sepals** thick, fleshy, light brown speckled with purple-brown, glabrous externally, minutely pubescent within, the dorsal sepal oblong, 10 mm wide, connate to the lateral sepals for 11 mm to form a broad, cylindrical tube, the free portion triangular with the subacute apex acuminate into a short, thick, yellow, erect tail, the total length of the dorsal sepal 25 mm, the lateral sepals oblong, connate for 11 mm into a bifid lamina 17 mm wide, the bases forming with the column-foot a deep, rounded mentum, the subacute apices contracted into thick, yellow tails ca. 5 mm long, the total length of the lateral sepals 26 mm; **petals** white with a red midvein, cartilaginous, oblong, 9.5 mm long, 4 mm wide, the apex rounded with a short apiculum, both margins callous, the thickenings ending with obtuse angles below the middle; **lip** purple, spotted with dark purple, thick, oblong, 11 mm long, 5.75 mm wide, the apex obtuse, minutely denticulate and subverrucose, the disc with a pair of low, subparallel calli above the middle, the subcordate base hinged beneath; **column** white, semiterete, 7.5 mm long, the foot equally long, with a short, incurved extension.

PERU: without locality, collected by D. Bennett, cultivated by D. Richardson 1959, cultivated by M. & O. Robledo at La Ceja, Colombia, 12 July 1979, *C. Luer 2955* (Holotype: SEL; Isotype: JAUM); same collection, cultivated at Colomborquídeas, 18 Mar. 1989, *C. Luer 14253* (MO). **La Libertad**: terrestrial and lithophytic in bare, rocky terrain, between Trujillo and Huamachuco, alt. 2800 m, Aug. 1980, collected by W. Rauh 53752, cultivated at the Botanical Garden of the University of Heidelberg, cultivated in München by *Königer s.n.* (K, M, MO, SEL, USM, W, Herb H. Königer); same area, alt. 3750 m, 14 Feb. 1983, *D.N. Smith & R. Vasquez 3326* (MO); Sánchez Carrion, northwest of Huamachuco, alt. 3100-3500 m, 8 Jan. 1983, *M. Dillon, U. Molau & P. Matekaitis 2818* (AMAZ, F, MO, USM). **Cajamarca**: San Marcos, Cuenca del río Shitamalca, lithophytic, alt. 3100 m, 30 Oct. 1982, *L. Sánchez & J. Torres 6422* (CPUN, F, MO); lithophytic, between Cajamarca and Cajabamba, alt. 2500 m, 6 May 1983, *W. Rauh 53763* (SEL); between Cajamarca and Luchubamba, alt. 3800 m, 17 Nov. 1983, *A. Sagástegui et al. 11208* (HUT, MO).



This xerophytic species was found growing on and among rocks fully exposed to the tropical sun by Dr. Werner Rauh of Heidelberg, but at an altitude of about 3000 meters above sea level where the nights are chilly and damp. Like the neighboring cactus, the succulent leaves have assumed a cylindrical shape to conserve moisture. The flowers likewise are stout and fleshy, and borne close to the ground on short peduncles. The fusiform-leaved *Platystele rauhii* Luer also shares the same habitat.

Masdevallia semiteres was first discovered by David Bennett of Lima, Peru, and some of his plants were cultivated by the late Don Richardson of Manhassett, NY. A division was given to the Robledos in Colombia where the plant was cultivated without flowering for many years until finally a flower was produced in 1979. The leaves of these plants are short, no more than ten centimeters long. The leaves of the plants collected by Dr. Rauh are between eight and twelve centimeters tall.

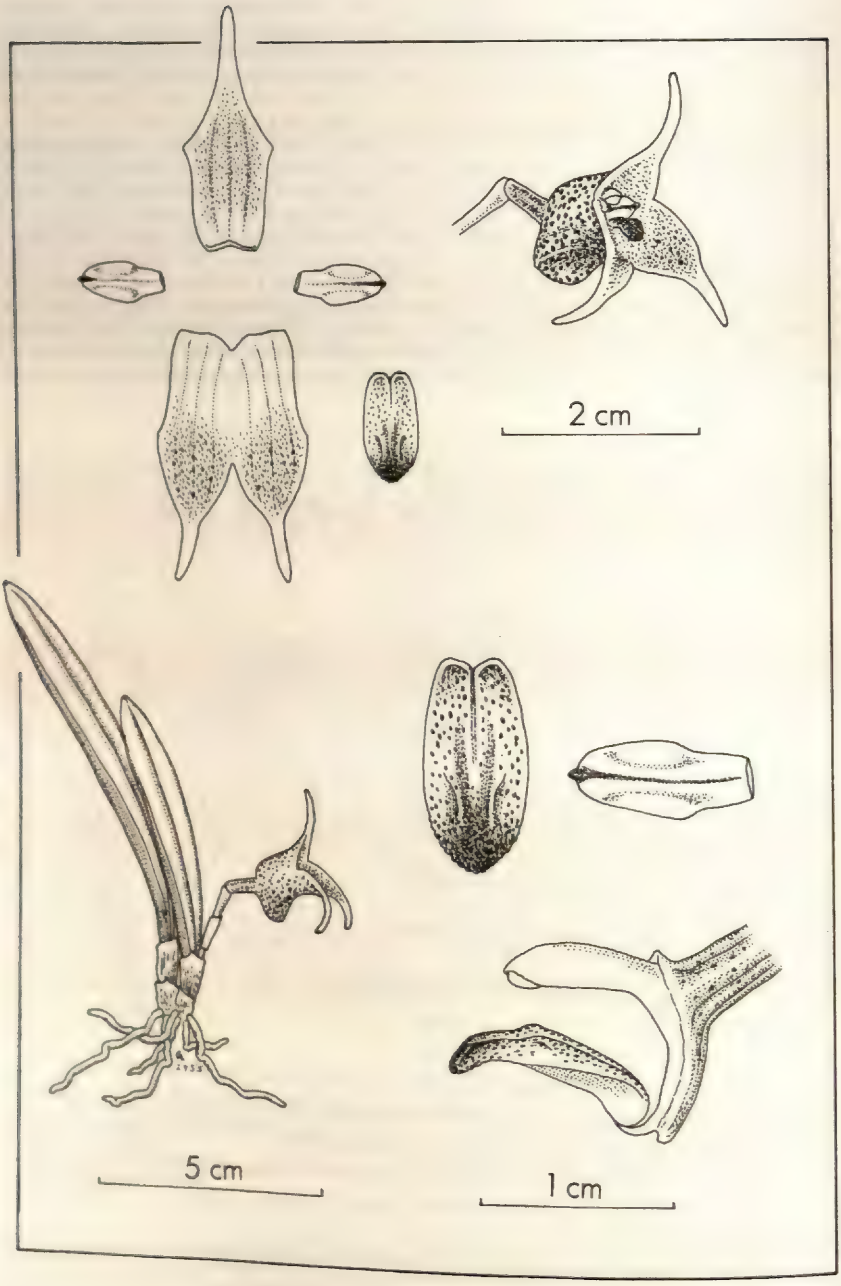


Plate 182. Masdevallia semiteres

Masdevallia spilantha Königer, Die Orchidee 36: 84, 1985.

Ety.: From the Greek *spilanthos*, "a spotted or stained flower," referring to the color of the flower.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 2.5-3.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thickly coriaceous, petiolate, 7-12.5 cm long including the petiole 2-3 cm long, the blade elliptical, subacute to obtuse, 1.8-2.1 cm wide, suffused with purple beneath, cuneate below into the petiole. **Inflorescence** a solitary flower, borne by a slender, suberect peduncle, 1.5-2.5 cm long, with a bract at the base, from low on the ramicaul; floral bract tubular, 13 mm long; pedicel spotted with red, 20-28 mm long; ovary purple, 5 mm long; **sepals** yellow, but obscured by diffuse suffusion and coalescing spots of red-purple, fleshy, shiny externally, cellular-pubescent within, the blade of the dorsal sepal obovate, 15 mm long, 13 mm wide, connate to the lateral sepals for 11 mm to form a broad, sepaline tube, the apex obtuse, contracted into a stout, forwardly directed, yellow-green tail 2.5-3 cm long, the lateral sepals ovate, oblique, 15 mm long, connate 10 mm to form a lamina 17 mm broad, forming a deep mentum with the column-foot, the apices obtuse, contracted into forward tails 22 mm long, similar to that of the dorsal sepal; **petals** yellow-green, cartilaginous, oblong-ovate, subunguiculate, 7.75 mm long, 3 mm wide, the apex obtuse, both halves thickened, slightly concave centrally, the labellar margin obtusely angled near the middle; **lip** yellow, diffusely spotted with dark purple-brown, thick, obovate, 9 mm long, 5 mm wide, the apex broadly rounded, verrucose, the disc shallowly sulcate, the base subcordate-sulcate, hinged below; **column** greenish white, semiterete, 6 mm long, the foot equally long, with an incurved extension.

PERU: **Amazonas**: between Leimebamba and Balsas, alt. 3100 m, Aug. 1980, *W. Königer, H. Königer, C. Luer, J. Luer & M. Arias K-50e* (Holotype: M; clonotype: K); same collection, *C. Luer 5430* (SEL); same collection, cultivated by W. Königer in Munich, Germany, 12 Sept. 1981, *C. Luer 6494* (SEL).

This species is apparently endemic in northern Peru where several plants were found in a scrub forest. It is characterized by the medium-sized habit and a short-pedunculate flower, the peduncle being shorter than the pedicel. The glistening smooth sepaline tube with a deep mentum is covered by coalescing red-purple flecks and spots. The oblique petals without a tooth, and the thick, verrucose, obovate lip are similar to those of other species of the section.

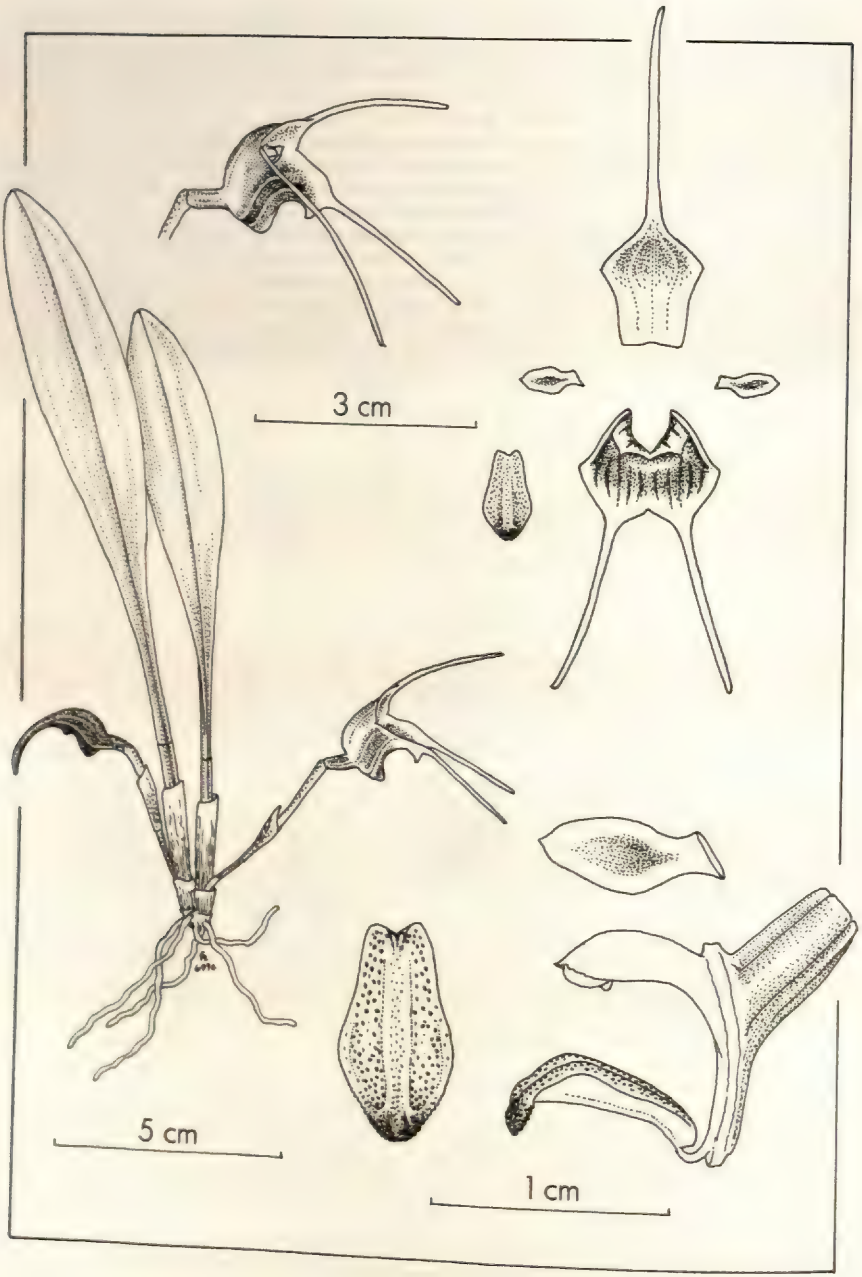


Plate 183. Masdevallia spilantha

Masdevallia sumapazensis P.Ortiz, Orquideología 14: 223, 1981.

Ety.: Named for the area of Cundinamarca known as Sumapaz.

Plant medium in size to large, epiphytic, caespitose; roots coarse. Ramicauls erect, stout, 4-5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thickly coriaceous, 12-17 cm long including the peduncle 2-3 cm, the blade elliptical, obtuse, 3-4 cm wide, cuneate below into the channeled petiole. **Inflorescence** a solitary flower, borne by a slender, erect peduncle 5-9 cm long, from low on the ramicaul; floral bract tubular, 2-2.5 cm long; pedicel 3-5 cm long; ovary green, 7-10 mm long; **sepals** fleshy, yellow-green, glabrous, the blade of the dorsal sepal with 3 longitudinal, purple lines, ovate, ca. 25 mm long, 10-12 mm wide, connate to the lateral sepals for 7-10 mm to form a cylindrical tube, the apex acute, acuminate into an erect, yellow tail ca. 20 mm long, the lateral sepals with large, purple spots, ovate, oblique, 40 mm long including the tail-like apices, 10 mm wide, connate 12 mm, the acute apices acuminate; **petals** white with purple midvein, thick, elliptical-oblong, 11-12 mm long, 3.5-4 mm wide, the apex obtuse, apiculate, both sides thickened, the labellar margin thicker; **lip** white, diffusely spotted with purple, thick, obovate, 14 mm long, 7 mm wide, the apex broadly rounded, verrucose and denticulate, the disc shallowly sulcate between a pair of thick, more or less longitudinal calli, the base subcordate, hinged beneath; **column** greenish white, semiterete, 10 mm long, the foot thick, 5 mm long, with an incurved extension.

COLOMBIA: **Cundinamarca**: Cabrera, "Boca de Monte," Páramo de Ollerías (Hoyerías?), alt. 3255 m, 23 Feb. 1970, *P. Ortiz V. 314* (Holotype: COL); same collection, cultivated at Colomborquídeas, Oct. 1982, *C. Luer 8164* (SEL).

This species is apparently endemic in a subparamo forest of the Eastern Cordillera of Colombia south of Bogotá where it was discovered by Father Pedro Ortiz of Bogotá. It is distinguished by the medium-sized, yellowish flower with large spots covering the lateral sepals. The apices of the sepals are acuminate into relatively short tails. The petals and lip are not remarkably different from most of the other species of section *Coriaceae*.

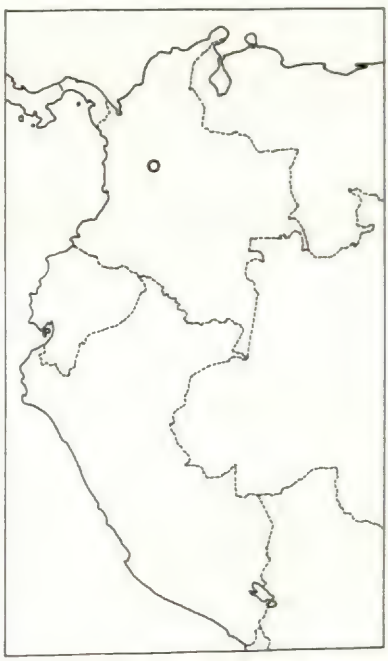
Plate 184. Masdevallia sumapazensis

Masdevallia torta Rchb.f., Gard. Chron. n.s., 19: 110, 1883.

Ety.: From the Latin *tortus*, "twisted," referring to a probable distortion of the tails of the lateral sepals of the holotype.

Plant large, presumably epiphytic, shortly repent to caespitose; roots coarse, Ramicauls stout, ascending to erect, spotted with purple, 7-11 cm long, enclosed by 2-3 large, loose, tubular sheaths. **Leaf** erect, dark green, thickly coriaceous, lightly curved, long-petiolate, 11-16 cm long including the petiole 4-5 cm long, the blade elliptical, 2.5-3.5 cm wide, the apex obtuse, the base cuneate into the purple-spotted petiole. **Inflorescence** a solitary, flower borne by an erect, slender peduncle 6-8 cm long, spotted with purple, with a bract near the base, from low on the ramicaul; floral bract white, dotted with red, inflated, 2.5 cm long; pedicel dotted with purple, 3-4 cm long; ovary 8 mm long; dorsal sepal light green with thin red veins, more or less lightly suffused in rose, glabrous, broadly obovate, 21 mm long, 18 mm wide, connate to the lateral sepals 15 mm to form a broad, cylindrical, sepaline tube, the free portion triangular with the obtuse apex contracted into a slender, erect, green tail 2.5 cm long; lateral sepals light green, veined in purple, suffused centrally with red-purple, essentially glabrous, 35 mm long, connate 33 mm into a broadly ovate lamina 32 mm wide, connate to the column-foot to form a broad, deep mentum, the obtuse apices contracted into slender tails 1.5 cm long; **petals** white, veined in purple, elliptical-oblong, 13 mm long, 6 mm wide, the apex broadly obtuse, oblique, lightly retuse, the labellar margin thickened, obtusely angled between the broadly unguiculate lower third and the middle third; **lip** purple, oblong-obovate, 18 mm long, 8 mm wide, the apex obtuse, verrucose, the disc with a faint pair of longitudinal calli, the base subcordate, hinged beneath; **column** white with purple margins, semiterete, 9 mm long, the foot 10 mm long, spotted with purple, with an incurved extension.

COLOMBIA: without locality or collector, imported in 1883 by *Mr. Bull s.n.* (Holotype; W); without locality, cultivated plant received from Glasnevin, Apr. 1887, *F. W. Moore s.n.* (K); without locality, cultivated by M. & O. Robledo at La Ceja, Colombia, 21 Jan. 1978, *C. Luer 2294* (SEL).



Reichenbach described this species from a cultivated specimen sent to him from Mr. Bull in England. The plant had been imported from Colombia, but without further information. No other collection is known. All plants presently in cultivation are divisions from a plant in the possession of the late Don Richardson of Manhasset, NY, who had obtained his specimen many years ago from Europe, as he had many of his other plants.

In her monograph on the genus *Masdevallia* Miss Woolward quotes Consul Lehmann as giving a well-known locality in Antioquia near Medellín for *M. torta*, but *M. torta* has never been seen there. However, *M. caudivolvula* Kraenzl. does grow in this area, and it is possible that Lehmann assumed the latter to be *M. torta* because of the truly twisted sepaline tails. Undoubtedly Lehmann never had an opportunity to see the true *M. torta*.

The epithet *torta* is a misnomer. The tails of the lateral sepals are not normally twisted. The tails of the dried flowers received by Reichenbach and still present in his herbarium are bent, and possibly twisted only in the process of drying.

Vegetatively, *M. torta* is one of the few species in the genus that can be easily recognized. The thick, dark green leaves are long petiolate, the petioles and ramicauls being diffusely spotted with purple. The ramicauls, usually engulfed by inflated, imbricating sheaths, are produced by a shortly repent, ascending rhizome.

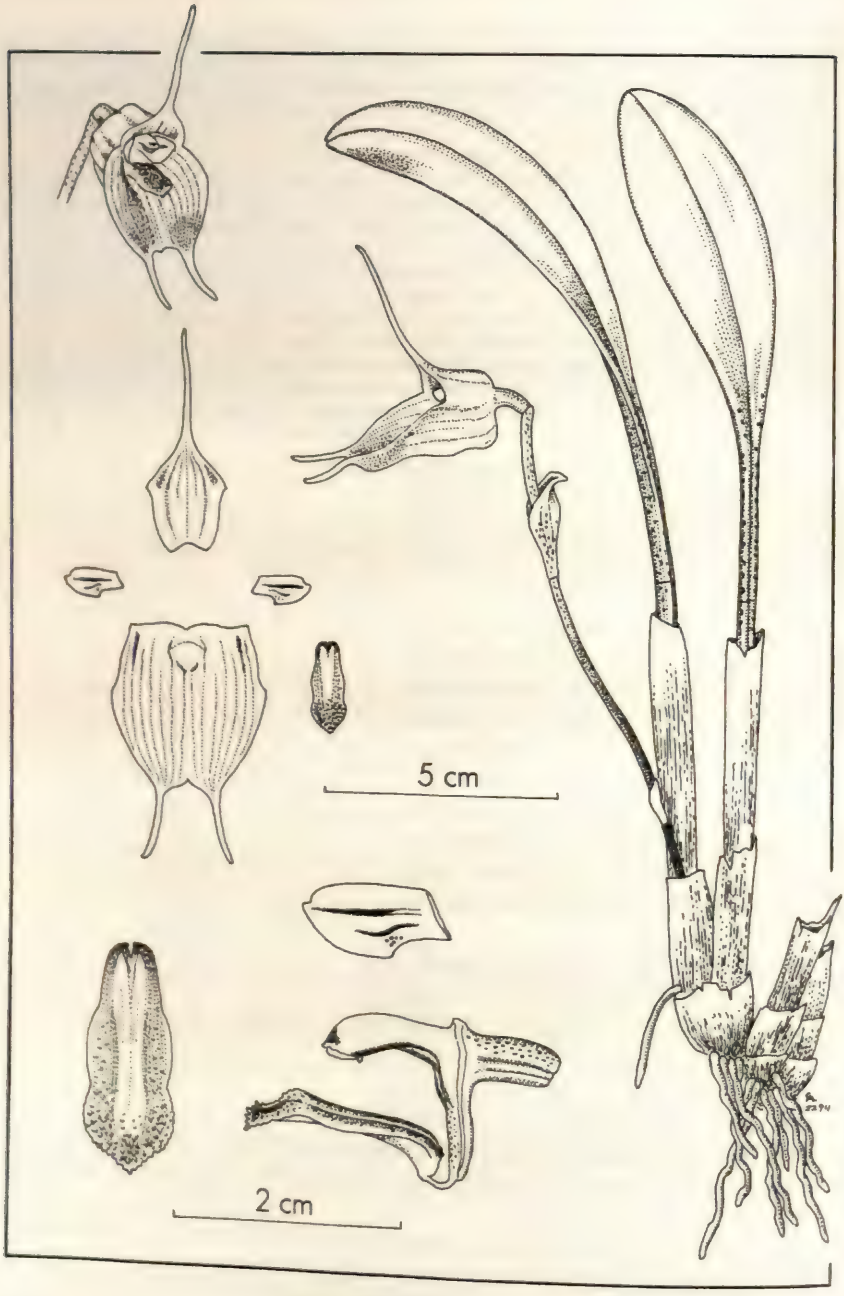


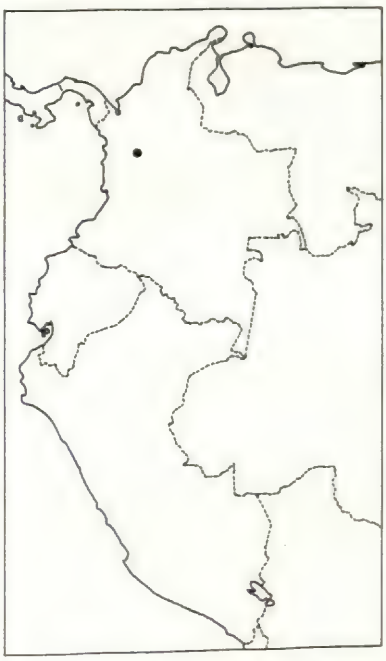
Plate 185. Masdevallia torta

Masdevallia velifera Rchb.f., Gard. Chron. n.s., 1: 406, 1874, *nomen nudum*; et Gard. Chron. n.s., 2: 98, 1874.

Ety.: From the Latin velifer, "curtain-bearing," in allusion to the broad, descending synsepal.
Syn.: *Masdevallia valifera*, sphalm., Gard. Chron. n.s., 10: 364, 1878.
Syn.: *Masdevallia vilifera*, sphalm., Gard. Chron. n.s., 16: 409, 1881.

Plant large, coarse, epiphytic, caespitose; roots coarse, fleshy. Ramicauls stout, erect, purple-black, 3-5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thickly coriaceous, dark green, 12-16 cm long including the petiole 3-4 cm long, the blade elliptical-oblong, subacute to obtuse, 2-2.5 cm wide, narrowly cuneate below into the blackish petiole. **Inflorescence** a large, solitary, foul-smelling flower, borne by an erect, stout peduncle 4-5 cm long, with a bract near the base, from near the base of the ramicaul; floral bract inflated, tubular, 2 cm long; pedicel stout, 4-5 cm long; ovary thick, 8-10 mm long; **sepals** fleshy, rigid, essentially glabrous, shiny externally, the dorsal sepal olive green with minute purple dots within, ovate, 35 mm long, 23 mm wide, connate to the lateral sepals for 15 mm to form a broad, cylindrical tube, the free portion triangular, the acute apex contracted into a slender, green, forwardly directed, 35 mm long, the lateral sepals olive green, heavily suffused with brown, 40 mm long, acutely arcuate in the lower third, connate 30 mm into an oblong-elliptical, descending synsepal, 25 mm wide, the base forming a broad, deep mentum beneath the column-foot, the free portions short, acute, contracted into slender, green tails 25 mm long; **petals** yellow-green, thickly cartilagenous, obliquely oblong, acute, 13 mm long, 4.5 mm wide, slightly concave medially, the base subpetiolate; **lip** dull purple with dark purple warts, elliptical-ovate, subacute, 13 mm long, 8 mm wide, the disc verrucose, with a low pair of longitudinal calli, the base subtruncate, hinged beneath; **column** light yellow-green, semiterete, 9 mm long, the foot 10 mm long with a slender, incurved extension 4 mm long.

COLOMBIA: **Antioquia**: without locality, 1874, *Patin s.n.* (Holotype: K); epiphytic in forest near Santo Domingo, alt. 2130 m, collected Aug. 1984 by E. Valencia, cultivated at Colomborquídeas, 8 May 1985, *C. Luer 11303* (MO). **Santander**?: reportedly from near Ocaña, *R. Shuttleworth s.n.* (K).



In 1874, the Belgian collector Patin, who resided in Medellín, Colombia, was the first to export this species. He sent living plants to Mr. B.S. Williams of Victoria and Paradise Nursery in England, from whence a flower produced the same year was forwarded to Reichenbach, but without collection data.

A few years later, Shuttleworth sent living plants, reportedly found in abundance near Ocaña in the Eastern Cordillera of Colombia, to Mr. Bull. By the last decade of the nineteenth century, Miss Woolward noted that the species was rare in cultivation, no further importations having been made. Apparently it soon disappeared from European collections.

"Lost" for nearly a century, this species had been eagerly sought, but in vain, by collectors. It was not until 1985 that plants discovered near Medellín proved to be *M. velifera*. No doubt it was this species to which Lehmann was referring in Woolward's monograph when he stated that *M. elepanticeps* was to be found near Santo Domingo near Medellín.

The large, dark yellow, fleshy flowers of *M. velifera* are characterized by the broad, conspicuous, acutely deflexed synsepal. The strong, disagreeable odor of the flower, so offensive to the human olfactory sense, must be very attractive to certain flies. It is the same pungent odor as that of *Pleurothallis aphthosa* Lindl.

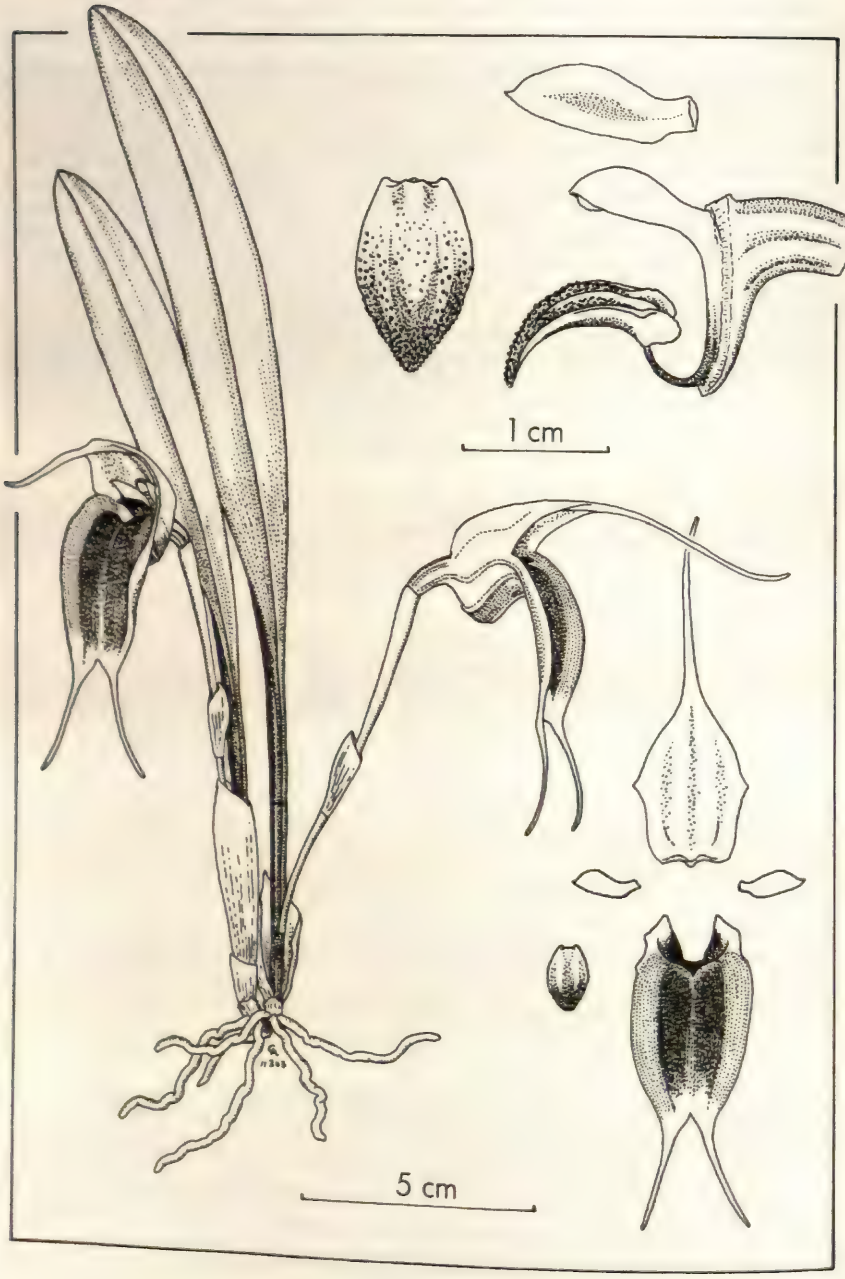


Plate 186. Masdevallia velifera

MASDEVALLIA SECTION DENTATAE

Masdevallia subgenus **Masdevallia** section **Dentatae** (Luer) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 77: 10, 2000.

Bas.: *Masdevallia* subgenus *Masdevallia* section *Reichenbachianae* subsection *Dentatae* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 16: 48, 1986.

Type: *Masdevallia collina* L.O.Williams, Amer. Orchid Soc. Bull. 11: 93, 1942.

Ety.: From the Latin *dentatus*, "dentate," referring to toothed petals.

Together with section *Durae* of subgenus *Masdevallia* and section *Polyanthae* of subgenus *Polyantha*, section *Dentatae* of *Masdevallia* is distinguished by a successively flowered inflorescence, a terete peduncle, and thickly fleshy sepals variously connate into a sepaline cup or tube. The lip divided by marginal folds distinguishes subgenus *Polyantha*, but the two remaining sections of *Masdevallia* with an entire lip differ from each other not only in habit, but also in the calli of the petals and morphology of the lip. The petals of section *Dentatae* are thickly callous below the middle with descending processes; the petals of section *Durae* are without a descending process. The base of the lip of section *Dentatae* is without cavities; the base of the lip of section *Durae* is provided with a pair of concavities.

Only four species meet the above criteria for section *Durae*. The first to be described was *M. collina* from Panama, and the other three are Colombian.

Section *Dentatae* is distinguished by a caespitose habit; thickly coriaceous leaves similar to the majority of the genus; a terete peduncle; a successively flowered inflorescence; and fleshy, caudate sepals connate into a tube. The petals are cartilaginous with thick, descending processes below the middle. The lip is thick, oblong and subacute or obtuse, with the apex recurved. The disc is shallowly channeled between callous halves, but without marginal folds.

BINOMIALS IN *MASDEVALLIA* ATTRIBUTABLE TO SECTION *DENTATAE*

M. collina L.O.Williams ..... Plate 187.
M. collina var. *macrogenia* = **M. macrogenia**
M. dryada Luer & Escobar ..... Plate 188.
M. macrogenia (Arango) Luer & Escobar ..... Plate 189.
M. zapatae Luer & Escobar ..... Plate 190.

KEY TO THE SPECIES

1 Sepaline tube cylindrical, more or less arcuate; petals with 2 distinct processes..... ..... *M. collina*

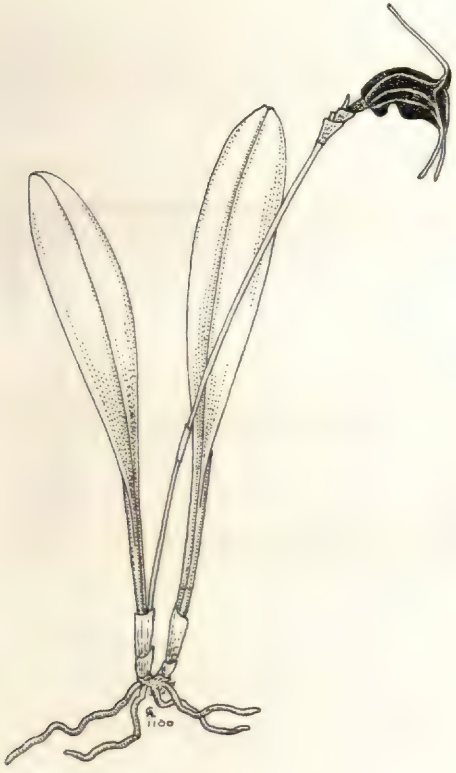
1' Sepaline tube sharply deflexed against itself near the middle; petals with 2 confluent processes 2

2 Lateral sepals with tails longer than the sepaline tube..... *M. dryada*

2' Lateral sepals with tails shorter than the sepaline tube.....3

3 Dorsal sepal with the tail subclavate, longer than the sepaline tube..... ..... *M. macrogenia*

3' Dorsal sepal with the tail not subclavate, shorter than the sepaline tube..... ..... *M. zapatae*



Masdevallia collina L.O.Williams, Amer. Orchid Soc. Bull. 11: 95, 1942.

Ety.: From the Latin *collinus*, "of the hills," in reference to the area above El Valle where the species was discovered.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 1-2 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 5-11 cm long, the blade narrowly obovate, obtuse, 1.5-2 cm wide, narrowly cuneate below into the subpetiolate base. **Inflorescence** a congested raceme of 3-5 successive flowers, borne by an erect to suberect peduncle 6-11 cm long, round in cross-section, with a bract below the middle and another above the base, from near the base of the ramicaul; floral bracts oblique, imbricated, 5-10 mm long; pedicels 5-6 mm long; ovary 5 mm long; **sepals** glossy deep purple, rigidly fleshy, glabrous, the dorsal sepal oblong, 17 mm long, 9 mm wide, connate to the lateral sepals for 14 mm to form a curved, sepaline tube with a deep mentum, the free portion transversely triangular, obtuse, contracted into a slender, reflexed, yellow-green tail 16 mm long, the lateral sepals yellow, connate 15 mm into an ovate synsepal, 18 mm long, 19 mm wide expanded, the free portions obliquely triangular, obtuse, 2-3 mm apart, contracted into slender tails 8 mm long; **petals** white, marked with rows of minute, transverse, purple bars, oblong, 5 mm long, 1.5 mm wide, the apex truncate, shallowly 3-lobulate, both halves longitudinally callous, the lower callus produced into a short, acute, deflexed process near the middle, and another 1 mm long tooth at the base; **lip** deep purple, ovate, 6 mm long, 2.5 mm wide, thickened above the middle, broadly concave below the middle, the apex truncate, recurved, minutely denticulate, the base truncate, hinged beneath; **column** white, semiterete, 5 mm long, the foot 3 mm long with a slender, incurved extension.

PANAMA: **Coclé**: epiphytic, hills north of El Valle de Antón, alt. ca. 1000 m, 23 June 1940, *P.H. Allen 2158* (Holotype: AMES; Isotype: MO); same area, 29 June 1946, *P.H. Allen 3560* (MO); same area, 2 Sept. 1976, *C. Luer & H. Butcher 1100* (SEL); same area, alt. 900 m, cultivated at Colomborquídeas, 17 Apr. 1988, *C. Luer 13244* (MO).

This species, first discovered by Paul Allen while botanically exploring for the *Flora of Panama*, is endemic in central Panama. It is one of the epiphytic colonizers of cultivated orange groves.

Masdevallia collina is characterized by a congested, successively flowered raceme borne by a peduncle round in cross section. The rigid flowers with comparatively short tails of the lateral sepals are glossy deep purple, appearing as if polished. From a longitudinal callus above the lower margin of the petal an acute process is present just below the middle, and another longer, descending process is present at the base. The ovate lip is with a pair of longitudinal calli above the thickened and shallowly concave base.

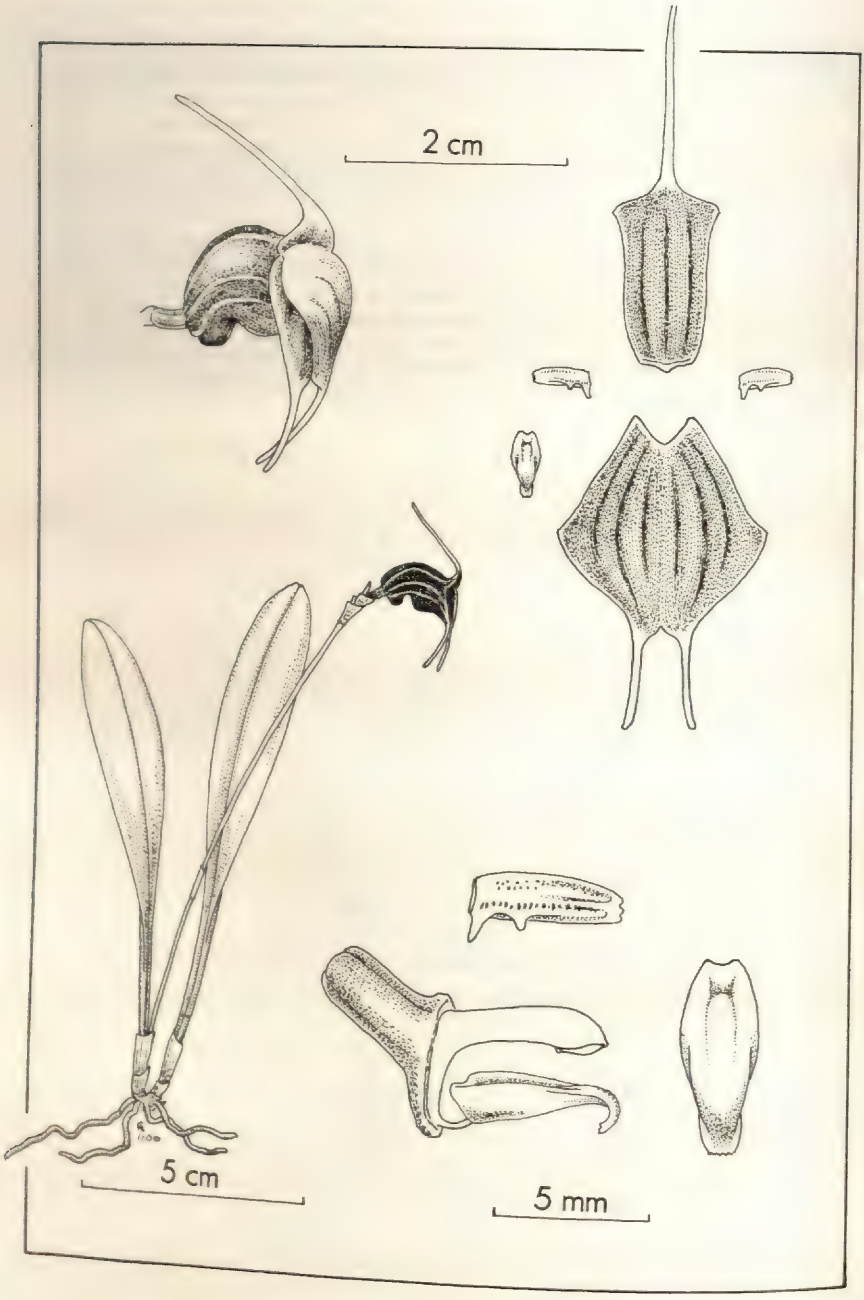


Plate 187. Masdevallia collina

Masdevallia dryada Luer & Escobar, Lindleyana 4: 108, 1989.

Ety.: Named for a Dryad, a wood nymph of Greek mythology.

Plant medium in size, caespitose; roots coarse. Ramicauls erect, slender, 1.5-3 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 6-10.5 cm long including the petiole 1.5-2.5 cm long, the blade elliptical, subacute to obtuse, 1.2-2 cm wide, cuneate below into the petiole. **Inflorescence** a successively several-flowered raceme up to 1.5 cm long borne by a slender, erect peduncle 6-10 cm long, with a bract on the lower third, from low on the ramicaul; floral bracts tubular, 5-8 mm long; pedicel 5-8 mm long; ovary 3-4 mm long; **sepals** white, dotted with purple, the dorsal sepal suboblong, concave, 8-9 mm long, 6 mm wide expanded, connate to the lateral sepals for 5 mm to form a semi-orbicular, sepaline cup, the apex rounded, contracted into a slender, suberect, white tail 20 mm long, the lateral broadly ovate, oblique, 7-8 mm long, 5 mm wide, connate 4 mm across an acute, transverse fold forming a deep chin, the apices obtuse, contracted into slender, white tails 16-17 mm long; **petals** white, dotted with purple, cartilaginous, more or less oblong-ovate, 4 mm long, 1-2 mm wide, the apex irregular, obliquely truncate, the labellar margin thickened with a longitudinal callus produced into a broad, thick, process above the base; **lip** white, dotted with purple, 5 mm long expanded, 2 mm wide, the apex subacute, recurved, the disc with a pair of low, longitudinal calli, the base truncate, notched, hinged beneath; **column** white, dotted with purple, with a thin, purple margin, semiterete, 4 mm long, the foot equally long including a free, incurved extension.

COLOMBIA: **Antioquia**: Munic. of Yarumal, epiphytic in forest between Yarumal and El Cedro, alt. 1850 m, 15 Mar. 1989, *C. Luer, J. Luer, S. Dalström & W. Teague 14161* (Holotype: MO; Isotypes: JAUM, K); same area, collected by W. Königer, H. Königer & L.C. Vieira, cultivated in Munich, Germany, 3 Sept. 1988, *C. Luer 13741* (MO).

This species was discovered by the Königers in 1988, and in the same area of forested eastern slopes of the Central Cordillera it was found to be abundant in 1989. It is closely allied to *M. macrogenia*, which occurs on the western slopes of the Central Cordillera. Both species are characterized by the sepaline tube acutely deflexed upon itself, forming a large mentum with the column-foot. It is distinguished from *M. macrogenia* by the flower parts of only half the dimensions, but with longer sepaline tails.

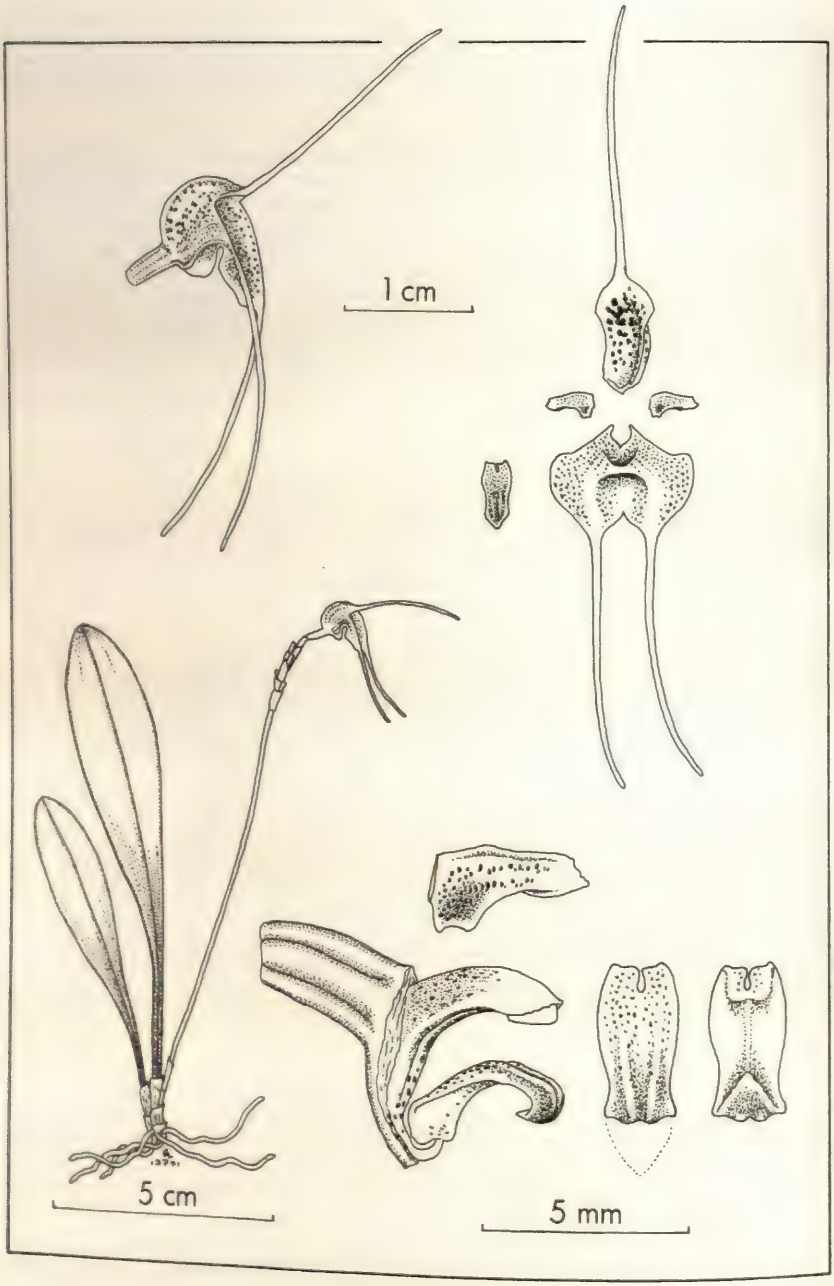


Plate 188. Masdevallia dryada

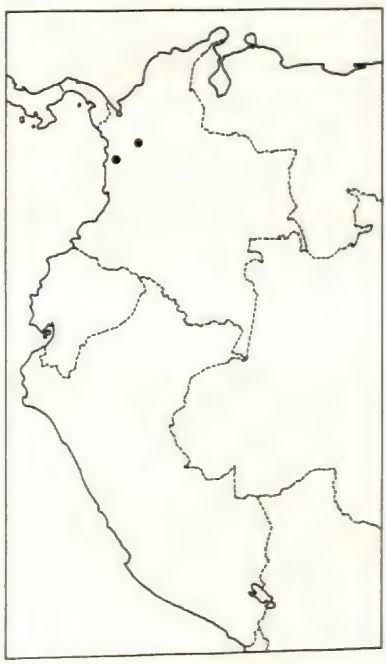
Masdevallia macrogenia (Arango) Luer & Escobar, Orquideología 13: 79, 1978.

Bas.: *Masdevallia collina* L.O.Williams var. *macrogenia* Arango, Orquideología 11: 13, 1976.

Ety.: From the Greek *makrogeneion*, "with a large chin," referring to the prominent mentum.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls stout, erect, 1-2 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thickly coriaceous, 7-12 cm long including the 1-3 cm long petiole, the blade elliptical-obovate, 1.8-2.5 cm wide, with the apex obtuse, the base cuneate into the petiole. **Inflorescence** an abbreviated, successively few-flowered raceme borne by a slender, suberect to horizontal peduncle 9-14 mm long, with a bract below the middle, from low on the ramicaul; floral bracts imbricating, tubular, 7-10 mm long, enclosing pedicel and ovary; pedicel 4-5 mm long; ovary green with purple spots, 5.5 mm long; **sepals** shiny brown with darker brown spots, glabrous, carinate, the blade of the dorsal sepal obovate, 15 mm long, 12 mm wide, the apex broadly obtuse, contracted into a slender, subclavate, green tail 15 mm long, connate to the lateral sepals for 9 mm to form a short, broad, cylindrical tube, the lateral sepals connate 10 mm into a broadly ovate, bifid lamina sharply deflexed near the middle to form a deep mentum with the column-foot, 15 mm long, 16 mm wide, the apices subacute, contracted into slender, green tails 8 mm long; **petals** light green, spotted with purple, obliquely oblong, 7 mm long, 2.5 mm wide, the apex subtruncate, retuse, the labellar margin with a low, marginal callus ending above a larger, thicker callus from the center of the petal and ending in an obtuse, retrorse process at the base; **lip** thick, rose with purple spots, suffused with orange at the apex, oblong, arcuate, 10 mm long, 3 mm wide, the apex rounded, recurved, denticulate, the disc shallowly sulcate between a pair of low, longitudinal calli, the base subcordate, deflexed, carinate beneath, hinged beneath; **column** mottled with purple, semiterete, 5.5 mm long, the foot 6 mm long with an incurved extension.

COLOMBIA: **Antioquia**: Yarumal, La Secunda Bodega, Briceño, alt. 1400 m, Aug. 1975, *O.J. Arango 160* (Holotype: JAUM); Valdivia, "Manzanares," alt. 1200-1500 m, 18 June 1975, collected by J.M. Serna, cultivated by O.J. Arango at La Estrella, *R. Escobar 1623b* (JAUM); same collection, cultivated by O.J. Arango at La Estrella, 24 Jan. 1978, *C. Luer 2326* (SEL); "Frisolera," alt. 1200 m, Aug. 1974, collected by J.M. Serna, cultivated by M. & O. Robledo at La Ceja, *R. Escobar 1623a* (JAUM). **Chocó**: Bahia Solano, "Mecana arriba," alt. 150 m, 24 May 1975, collected and cultivated by G. Misas, *R. Escobar 1626* (JAUM).



This species is endemic in the northern part of the Western Cordillera of Colombia. It was first described as a variety of the Panamanian *M. collina*, which it superficially resembles. *Masdevallia macrogenia* is characterized by a long, more or less horizontal peduncle that bears an abbreviated, few-flowered raceme, two flowers often occurring simultaneously. The brown-spotted sepals are glossy externally. A deep transverse cleft across the lateral sepals creates a deep mentum with the column-foot. The petals are thickly callous with a more or less double process at the base. The oblong lip is arcuate and sulcate centrally.

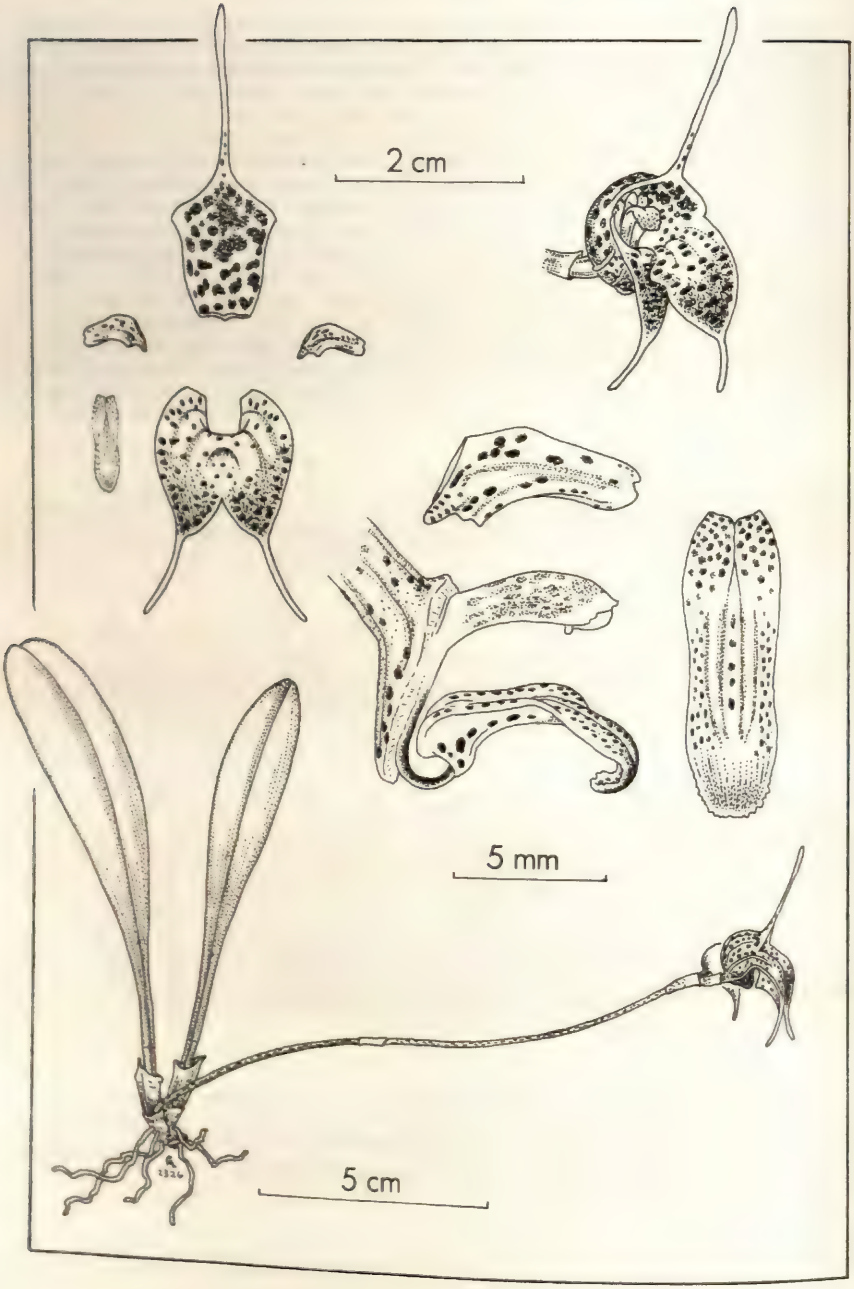


Plate 189. Masdevallia macrogenia

Masdevallia zapatae Luer & Escobar, Novon 1: 175, 1991.

Ety.: Named in honor of Manuel Zapata, a collector, who discovered this species.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 1-1.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 8-9.5 cm long including a petiole 1.5-2 cm long, the blade narrowly obovate, subacute to obtuse, 1.6-1.8 cm wide, narrowed below into the petiole. **Inflorescence** a congested, successively few-flowered raceme borne by a slender, erect peduncle 6-7 cm long, round in cross section, with a bract above the base, from low on the ramicaul; floral bract tubular, 6 mm long; pedicel 7-8 mm long; ovary 3-4 mm long; **sepals** red with purple spots, glabrous, the dorsal sepal obovate, concave, 14 mm long, 9 mm wide unexpanded, connate to the lateral sepals for 6 mm to form a short, cylindrical tube, the apex rounded, contracted into a yellow, forwardly directed, narrowly triangular, acute tail 8 mm long, the lateral sepals broadly ovate, 14 mm long, 10 mm wide, connate 10 mm over a transverse, 180° fold, the free portions rounded, contracted into narrowly triangular, descending tails 4 mm long; **petals** pink, spotted with purple, obliquely oblong, 4 mm long, 1 mm wide, 2.5 mm wide at the base, the apex obtuse, tridentate, the labellar margin with a longitudinal callus ending in a broad, thick rounded process at the base; **lip** spotted with purple, oblong, 6 mm long, 1.8 mm wide, the apex recurved, obtuse with a denticulate margin, the disc shallowly channeled between a low, longitudinal pair of calli, the base thickened, deeply cleft, hinged beneath; **column** suffused with purple, semiterete, 3 mm long, the foot thick, 5 mm long, with a slender, incurved extension.

COLOMBIA: **Antioquia**: Munic. of Urrao, "El Llavero," alt. 1400-1600 m, collected by M. Zapata in Nov. 1989, cultivated at Colomborquídeas, 4 Nov. 1990, *R. Escobar 4054* (Holotype: JAUM; Isotype: MO); C. Luer illustr. 14914.

Masdevallia zapatae is closely related to *M. dryada* and *M. magrogenia*, but it is readily recognized by the short sepaline tails. The tails are narrowly triangular, those of the laterals only four millimeters long. From *M. macrogenia*, which it resembles most, it is distinguished by the less deeply connate dorsal sepal, that is, connate to the lateral sepals for less than half its length. The dorsal sepal of *M. macrogenia* is connate to the lateral sepals for far more than half the length.

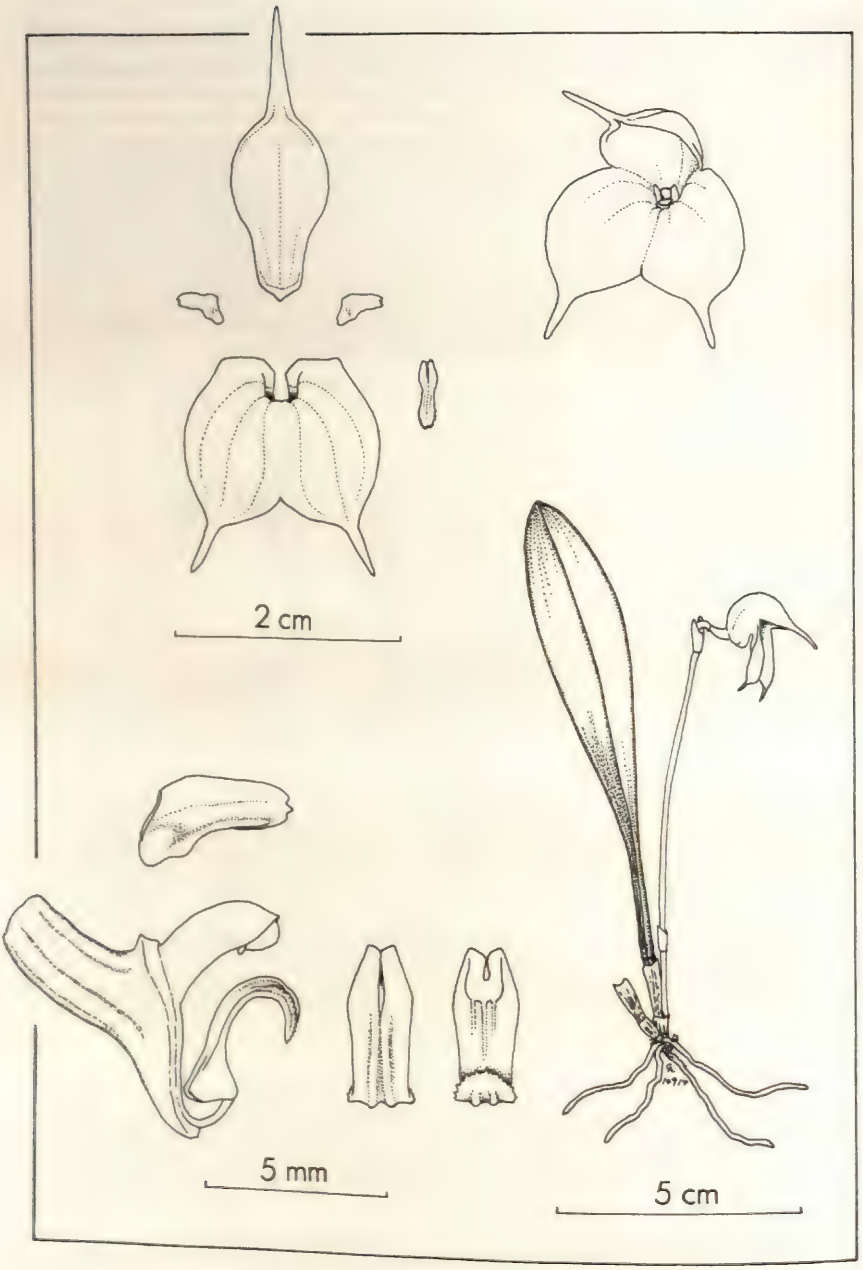


Plate 190. Masdevallia zapatae

MASDEVALLIA SECTION DURAE

Masdevallia subgenus **Masdevallia** section **Durae** (Luer) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 77: 10, 2000.

Bas.: *Masdevallia* subgenus *Masdevallia* section *Coriaceae* subsection *Durae* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 16: 23, 1986.

Type: *Masdevallia dura* Luer, Phytologia 39: 197, 1978.

Ety.: From the Latin *durus*, "hard," referring to the texture of the flowers.

Although section *Durae* contains some of the most spectacular species of the genus, none was known prior to 1978 when *M. ayabacana* and *M. dura* were first recognized. The earliest collection was of *M. dura* made by Hübsch around 1884. Except for the unusual Panamanian *M. utriculata* that lacks tails of the lateral sepals, all are found in southeastern Ecuador and northern Peru.

Section *Durae* is distinguished by thickly coriaceous leaves; a terete, ascending to horizontal peduncle; a successively flowered inflorescence; long, slender sepaline tails (except for *M. utriculata*), and thickly fleshy sepals variously connate into a sepaline cup or tube. The petals are thick and callous on both halves. The lip is thick, oblong, and obtuse, with deeply concave, basal lobes. The disc is variously callous, but without marginal folds.

BINOMIALS IN *MASDEVALLIA* ATTRIBUTABLE TO SECTION *DURAE*

M. ayabacana Luer ..... Plate 191.
M. dura Luer ..... Plate 192.
M. goliath Luer ..... Plate 193.
M. newmaniana Luer ..... Plate 194.
M. panguiënsis Luer & Andreetta ..... Plate 195.
M. princeps Luer ..... Plate 196.
M. regina Luer ..... Plate 197.
M. robusta Luer ..... Plate 198.
M. titan Luer ..... Plate 199.
M. utriculata Luer ..... Plate 200.

KEY TO THE SPECIES

1 Dorsal sepal with the tail clavate; lateral sepals tailless..... *M. utriculata*
1' Sepals with elongate, terete tails 2

2 Lateral sepals with the apices more or less contiguous..... 3
2' Lateral sepals with the apices diverging 8

3 Synsepal ca. 4 cm broad 4
3' Synsepal 3 cm or less broad 5

4 Synsepal with the tails abruptly reflexed..... *M. princeps*
4' Synsepal with the tails extended, not reflexed..... *M. regina*

5 Sepals with tails more than 12 cm long 6
5' Sepals with tails less than 10 cm long..... 7

6 Synsepal deeply concave, with the angle between the dorsal sepal and synsepal ca. 90° ..... *M. titan*
6' Synsepal shallowly concave, with the angle between the dorsal sepal and synsepal broadly obtuse..... *M. goliath*

7 Petals glabrous ..... *M. panguiënsis*
7' Petals verrucose with a carina ..... *M. newmaniana*

8 Sepals connate into a cylindrical tube..... *M. dura*
8' Sepals connate into a concave synsepal 9

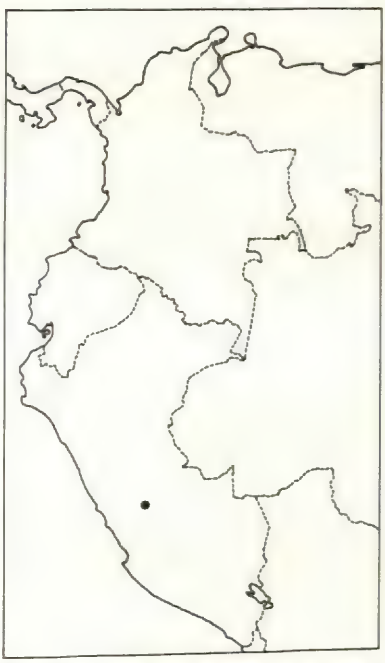
9 Dorsal sepal shallowly connate to the lateral sepals for less than half its length..... *M. ayabacana*
9' Dorsal sepal deeply connate to the lateral sepals for more than half its length..... *M. robusta*

Masdevallia ayabacana Luer, Phytologia 39: 189, 1978.

Ety.: Named for the community of Ayabaca near the locality where the species was reported to have been collected.

Plant medium to large in size, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 1.5-2 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, thickly coriaceous, narrowly obovate, obtuse, 10-23 cm long, 2.6-3.3 cm wide, gradually narrowed below into an indistinctly petiolate base. **Inflorescence** a congested, successively few-flowered raceme borne by a terete, purplish, more or less horizontal to ascending or descending peduncle 20-35 cm long, with 2-3 close bracts below the middle, from low on the ramicaul; floral bract tubular, 15 mm long; pedicel 10-15 mm long; ovary 10 mm long; **sepals** fleshy, dark red-purple, glabrous externally, minutely papular-pubescent within, the blade of the dorsal sepal ovate-triangular, 15-20 mm long, 12-15 mm wide, the subacute apex attenuated into a slender, erect, orange to green tail 5-6 cm long, connate to the lateral sepals for 6-9 mm to form a short, conical tube, the lateral sepals ovate, oblique, 25-35 mm long, connate 17 mm into a concave lamina, 26-34 mm wide, the acute apices attenuated into tails 4.5-5 cm long; **petals** thickly cartilaginous, yellow, dotted with purple, smooth, broadly oblong, shortly unguiculate, 5-5.5 mm long, 3 mm wide, the truncate apex truncate, sub trilobed, both halves callous, shallowly sulcate centrally; **lip**, yellow-orange, dotted with red-purple, oblong-ligulate, 6.5-7 mm long, 3 mm wide, the apical third thickened, verrucose, with recurved margins, the apex rounded with a thick, verrucose callosity continuing to beneath, the disc shallowly sulcate, the base subcordate with elevated margins, hinged beneath; **column** cream-colored, stout, semiterete, 4 mm long, the foot thick with a very short, incurved extension.

PERU: ?**Piura**: near Ayabaca, imported by J & L Orchids from R. Stümpfle, cultivated 28 Aug. 1976, *C. Luer 2269* (Holotype: SEL). **Junín**: Chanchamayo, San Ramón, alt. 1200 m, collected by A. Pizarro, cultivated in Lima, May 1991, by *M. Arias S. s.n.* (MO), C. Luer illustr. 16330.



This species was first exported from Peru by Rudolf Stümpfle, apparently with erroneous collection data. The purported area near the Ecuadorian border has been searched for many years by many collectors in vain. It is now known to be locally abundant in the Chanchamayo valley in central Peru.

Masdevallia ayabacana is characterized by the long peduncle, which descends or ascends to bear successively a large, fleshy, long-tailed flower. The sepals are glabrous externally but minutely papular-pubescent within. The angle between the lateral sepals is broadly obtuse. The thickly cartilaginous petals are broad, shortly unguiculate, smooth, and obscurely trilobed at the truncate apex. The lip is oblong, entire, thickened and verrucose at the apex.

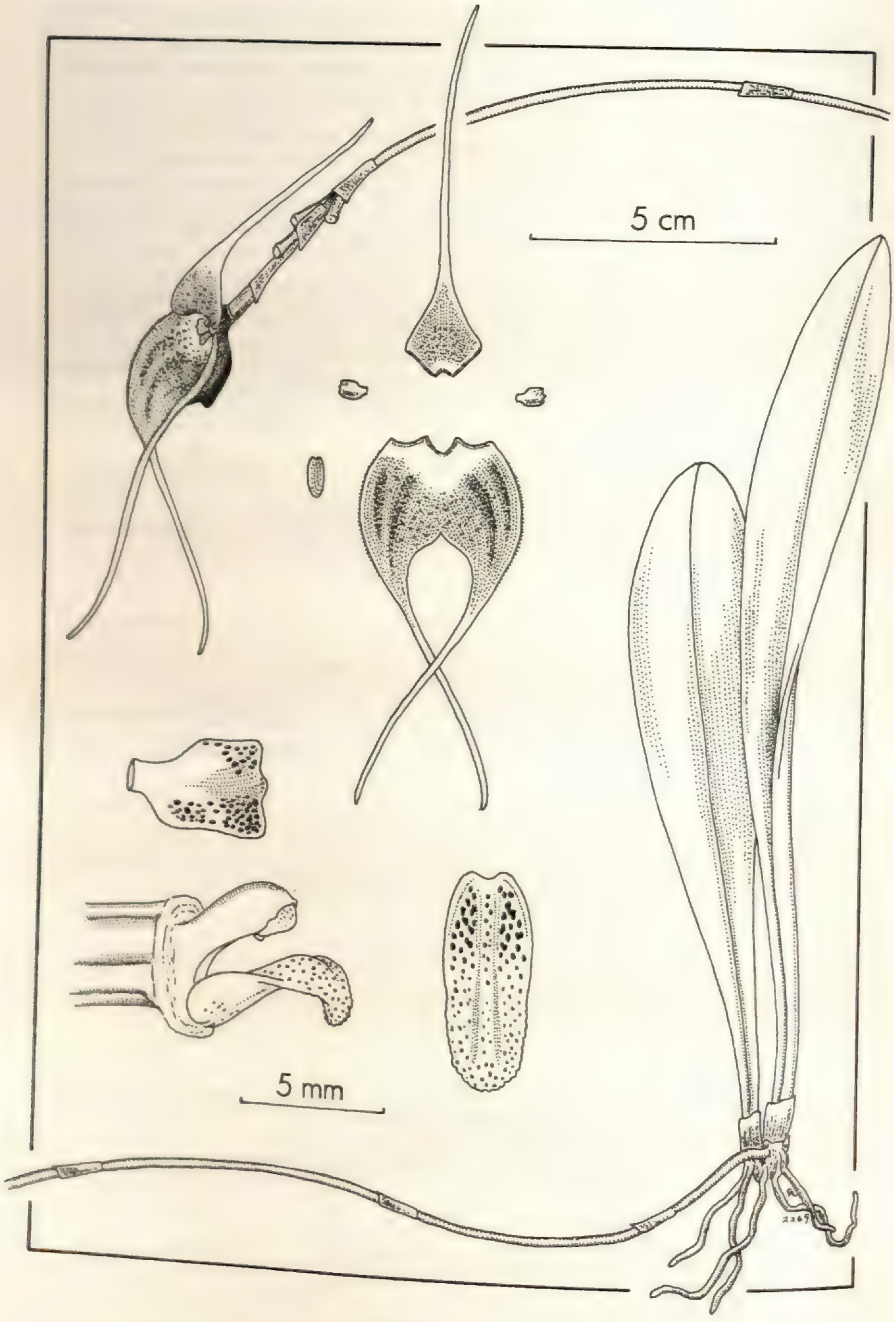


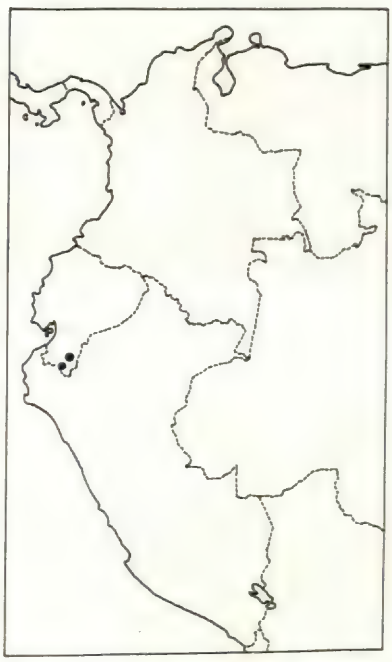
Plate 191. Masdevallia ayabacana

Masdevallia dura Luer, Phytologia 39: 197, 1978.

Ety.: From the Latin *durus*, "hard," in reference to the leaves and flowers.

Plant medium in size to large, epiphytic, caespitose; roots coarse, fleshy. Ramicauls stout, erect, 2-4 cm long, concealed by 2-3 thin, loose, tubular sheaths. **Leaf** erect, thickly coriaceous, rigid, 12-28 cm long including the petiole 2-5 cm long, the blade linear to narrowly elliptical, obtuse, 2.3-4 cm wide, narrowly cuneate below into the channeled petiole. **Inflorescence** a successively many-flowered, congested raceme up to 15 cm long, borne by a stout, suberect, transverse to descending peduncle 8-25 cm long, with 4-5 bracts, from low on the ramicaul; floral bracts thin, imbricating, 8-15 mm long; pedicel 5-15 mm long; ovary thick, 8-9 mm long, 4-5 mm wide, with purple papules; **sepals** fleshy, thick, rigid, externally dull yellow, subverrucose, internally verrucose-spiculate, diffusely spotted with purple, the dorsal sepal ovate, 15 mm long, 11 mm wide, connate to the lateral sepals for 5 mm to form a short, cylindrical, sepaline tube, the triangular free portion contracted into a thick, rigid, yellow-orange tail ca. 2 cm long, the lateral sepals ovate, 15 mm long, 10 mm wide, connate 5 mm, the free portions and tails similar to the dorsal sepal; **petals** fleshy, cream, marked with purple, elliptical, 5.5 mm long, 2.5 mm wide, with a low, curved callus above the lower margin, the apex subtruncate with a thick, obtuse tooth in the middle; **lip** purple, oblong-ligulate, 7 mm long, 3.25 mm wide, the apex rounded, papillose, the disc papillose with a short pair of curved calli above the middle, the base bilobed with a central sulcus, hinged below, the basal lobes subhemispherical and concave; **column** white, semiterete, 6 mm long, the thick foot 3 mm long with a short, incurved extension.

ECUADOR: **Loja**: Cordillera de Sabanilla, alt. 2900 m, Sept. 1973, collected by B. Malo & L. Figueroa, cultivated at Tarqui near Cuenca, 14 July 1977, *C. Luer 1698* (Holotype: SEL); Río Malacatoes, ca. 1884 *A. Hübsch 85* (W); between Cajanuma and Gonzanama, alt. 2200-2300 m, *F.C. Lehmann 7021* (AMES); epiphytic in cloud forest above Jimbura, alt. 3150 m, 21 Mar. 1984, *C. Luer, S. Dalström, T. Höijer & J. Kuijt 9650* (MO).



This coarse species occurs locally and abundantly in cold, cloud forests at 3000 meters above sea level in southernmost Ecuador where it was first collected by Lehmann. Since in one area it grows within sight of Peru, it most certainly will eventually be found there. Sometimes immense accumulations of many hundreds of plants form on the trunks of old, fallen trees.

The unusually hard and rigid, long-lasting flowers are produced successively in ever-lengthening, more or less pendent racemes so that the plants remain continuously in flower for years. The sepals are connate into a short, non-dilated, cylindrical tube from which the rigid tails spread. The absence of a tooth at the base of the petal, and the verrucose lip with a pair of nectaries at the base, hallmarks of the section, were first noted in this species.

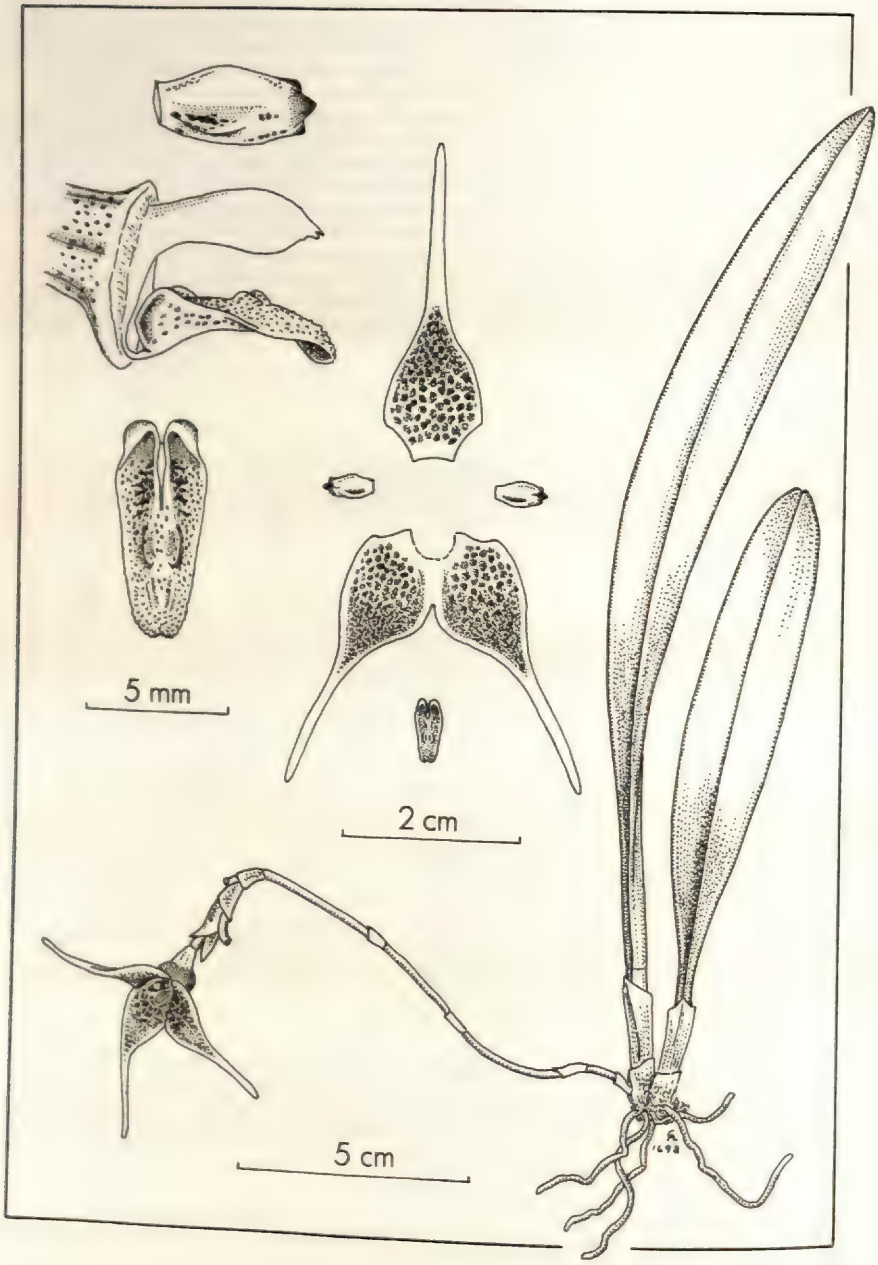


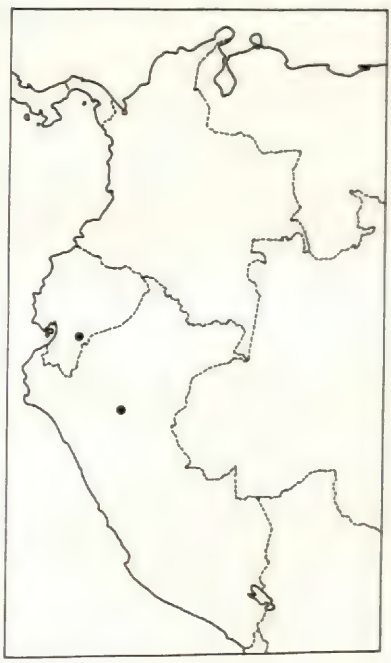
Plate 192. Masdevallia dura

Masdevallia goliath Luer & Andreetta, Novon 2: 6, 1992.

Ety.: Named for the Philistine giant Golyath, because of the immense size.

Plant medium to large, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 2-2.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, thickly coriaceous, narrowly obovate, obtuse, 14-17 cm long, 2.5-3.3 cm wide, gradually narrowed below into an indistinctly petiolate base. **Inflorescence** a congested, successively few-flowered raceme borne by a terete, purplish, more or less ascending peduncle 20-35 cm long, with 2-3 close bracts below the middle, from low on the ramicaul; floral bract tubular, 15 mm long; pedicel 10-15 mm long; ovary 10 mm long; **sepals** fleshy, dark red-purple, glabrous externally, minutely glandular-pubescent within, the blade of the dorsal sepal narrowly triangular-ovate, 30 mm long, 12 mm wide, the acute apex attenuated into a slender, erect, orange to green tail 9-10 cm long, connate to the lateral sepals for 6 mm to form a short, conical tube, the lateral sepals with elevated veins within, connate 23 mm into an ovate, broadly and shallowly concave lamina, ca. 35 mm long, 28 mm wide, the acute apices approximate and attenuated into tails 9-10 cm long; **petals** cartilaginous, yellow, dotted with purple, minutely asperate-verrucose, broadly oblong, shortly unguiculate, 5.5 mm long, 3.25 mm wide, the truncate apex bilobed with a thick, obtuse apiculum in the sinus, both halves callous, shallowly sulcate centrally; lip, yellow-orange, dotted with red-purple, thick, oblong-ligulate, 6 mm long, 2.75 mm wide, the apical third thickened, verrucose, with revolute margins, the apex rounded with a thick, verrucose callosity continuous into a reflexed callus beneath, the disc shallowly sulcate, the base subcordate, concave between elevated margins, hinged beneath; **column** greenish white, stout, semiterete, 4 mm long, the foot thick with a very short, incurved extension.

ECUADOR: **Morona-Santiago**: epiphytic near Bomboiza, alt. 1700 m, collected by A. Andreetta, cultivated at Paute, 24 May 1988, *C. Luer 13629* (Holotype: MO).
PERU: **Amazonas**: near Tarapoto, collected by M. Arias, cultivated by W. Rhodehamel at Hoosier Orchid Co., Indianapolis, IN, *W. Rhodehamel s.n.* (MO).



This large, robust species occurs locally in cloud forests of southeastern Ecuador and northeastern Peru. It is most closely allied to *M. titan*, also from Peru. The two species are similar, both vegetatively and florally. Long, ascending peduncles bear the flowers in slow succession. The dorsal sepal and the contiguous lateral sepals, each more than twelve centimeters long, spread in opposite directions. The synsepal is shallowly concave, presenting a more or less flat flower compared to the forwardly held, concave synsepal of *M. titan*. The sepals and petals of the two species are very similar.

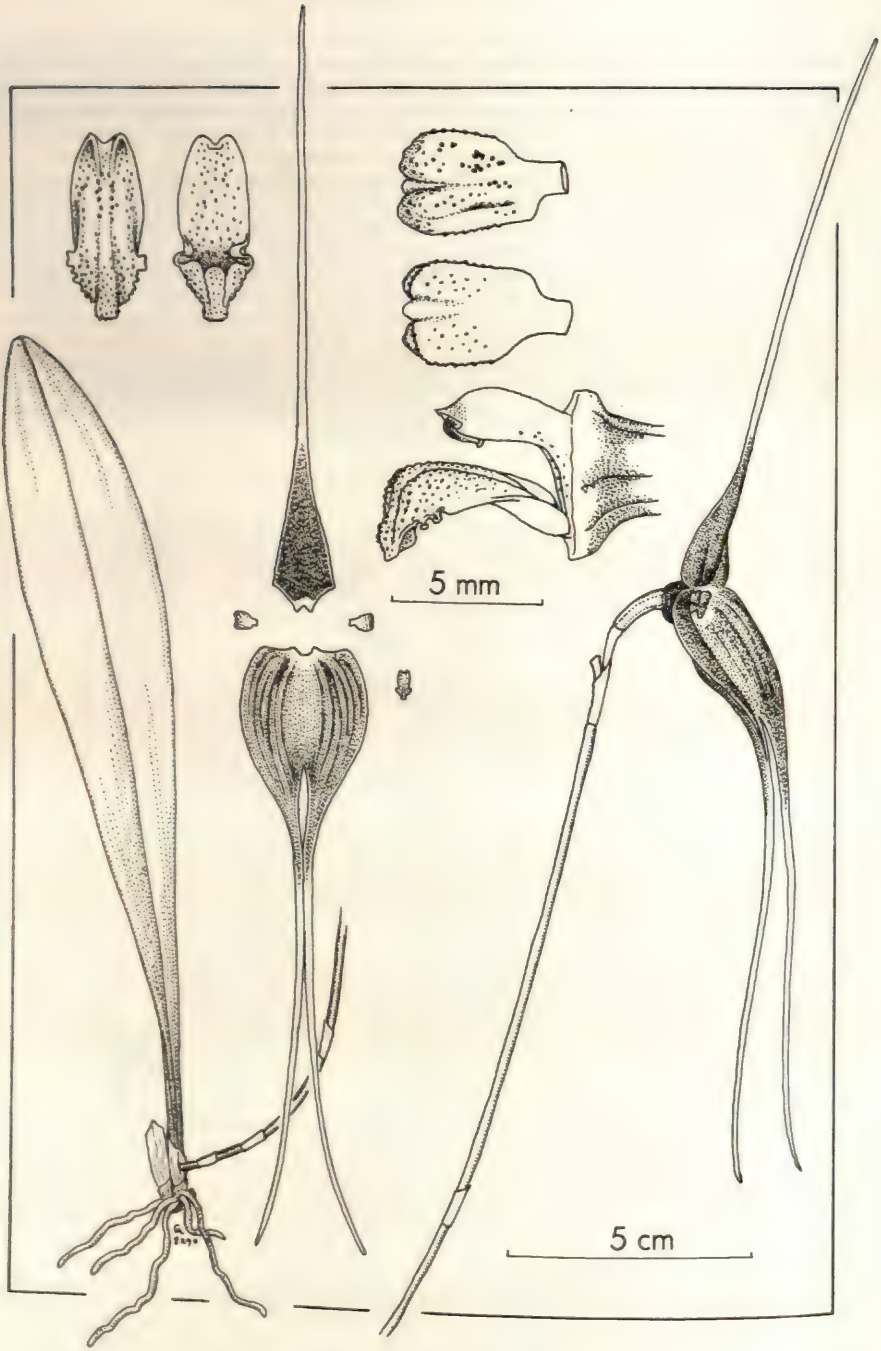


Plate 193. Masdevallia goliath

Masdevallia newmaniana Luer & Teague, Monogr. Syst. Bot. Missouri Bot. Gard. 72: 111, 1998.

Ety.: Named for Daniel Newman of San Francisco, California, who cultivates this species.

Plant medium in size to large, presumably epiphytic, caespitose; roots fleshy. Ramicauls erect, stout, 2-2.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thickly coriaceous, 13-15 cm long including the petiole ca. 3 cm long, the blade elliptical, subacute, 2-2.5 cm wide, gradually narrowed below into the petiolate base. **Inflorescence** a successively few-flowered raceme borne by a terete, more or less ascending peduncle 27-40 cm long, with 2-3 close bracts below the middle, from low on the ramicaul; floral bract tubular, 12-15 mm long; pedicel 12-15 mm long; ovary 10 mm long; **sepals** fleshy, dark red-purple, glabrous externally, minutely glandular-pubescent within, the blade of the dorsal sepal narrowly ovate, acute, attenuated into a slender tail, the total length 95 mm, 9.5 mm wide, connate to the lateral sepals for 5 mm to form a short, cylindrical tube, the lateral sepals with elevated veins within, connate 15 mm into an ovate, broadly and shallowly concave lamina, 20-25 mm long, 20 mm wide, the acute apices approximate and attenuated into tails ca. 7 cm long, the total length 9.5 cm; **petals** cartilaginous, yellow, dotted with purple, minutely asperate-verrucose above the middle, oblong-obovate, shortly unguiculate, 5 mm long, 2.5 mm wide, the subtruncate apex retuse, bilobed, both halves callous, the upper half only at the apex, the lower half longitudinally carinate, shallowly sulcate centrally; lip, yellow, dotted with red-purple, thick, oblong-obovate, 5.5 mm long, 3 mm wide, verrucose, with minutely irregular margins above the middle, the apex rounded, a smooth, rounded callus beneath, disc shallowly sulcate between 3 low veins, the base subcordate, shallowly concave between elevated margins, hinged beneath; **column** greenish white, stout, semiterete, 3 mm long, the foot thick with a very short, incurved extension.

ECUADOR: Without collection data, obtained from José Portilla, collector, cultivated by Newman in San Francisco, California, 22 Oct. 1998, *C. Luer 18944* (Holotype: MO).

This species is closely related to *M. goliath* and *M. titan*, with which it very possibly is sympatric in southeastern Ecuador at a relatively low altitude. It is distinguished from the latter two by the smaller habit and smaller flower that approach those of *M. panguiënsis*.

From *M. panguiënsis* it is distinguished by longer, more slender tails and verrucose petals. From *M. goliath* and *M. titan* it is further distinguished by petals with a carina above the lower margin, and an obovate, broadly obtuse lip without the revolute apex and apical margins.

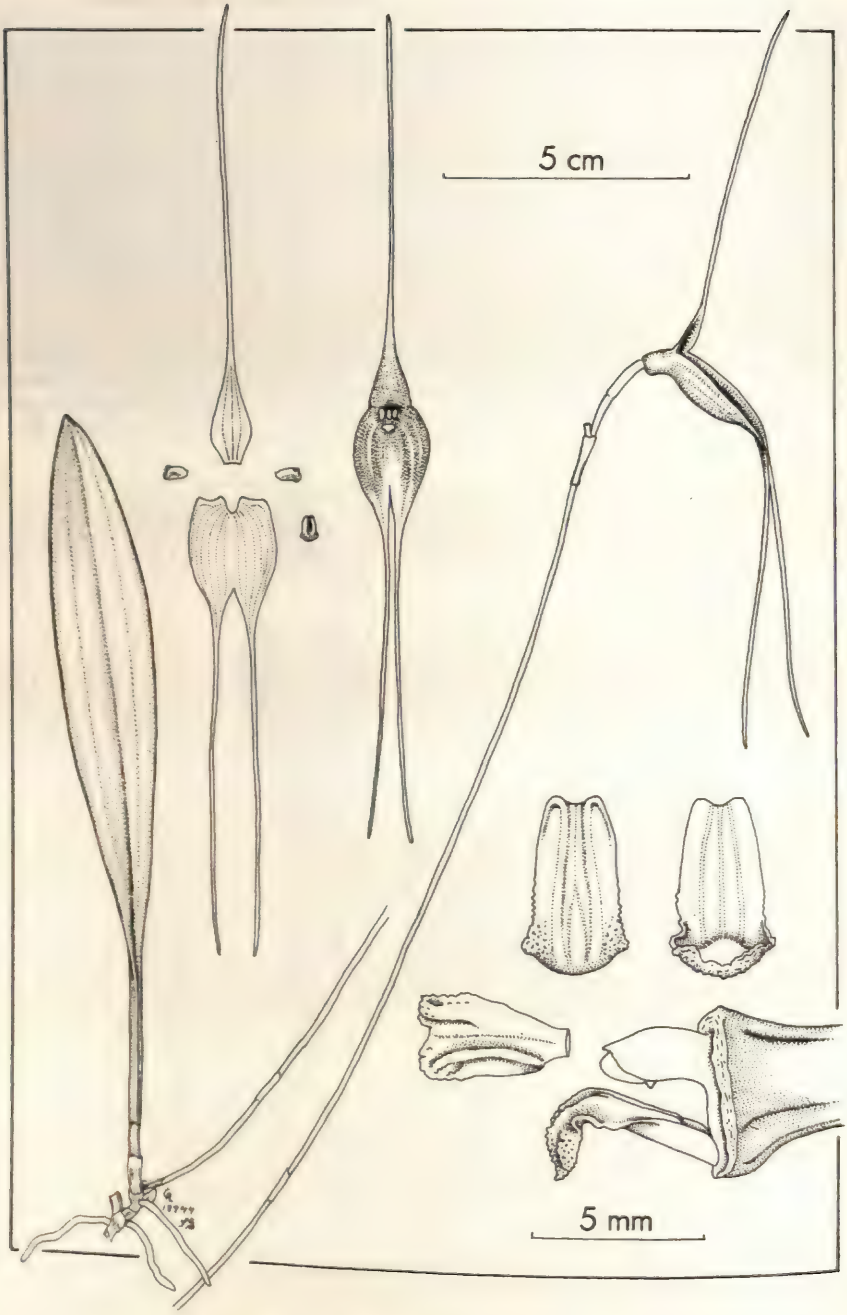


Plate 194. Masdevallia newmaniana

Masdevallia panguiënsis Luer & Andreetta, Phytologia 54: 383, 1983.

Ety.: Named for the community of El Pangui, near the locality where this species was found. *Pangui* from the Shuari *panki*, "a boa constrictor."

Plant medium in size, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 2-2.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, thickly coriaceous, narrowly obovate, 11-14 cm long, 2-2.3 cm wide, the apex obtuse, gradually narrowed below to the subpetiolate base. Inflorescence a succession of solitary flowers borne in a congested raceme 1-1.5 cm long, by an ascending peduncle 11 cm long or longer, with 3-4 bracts, from low on the ramicaul; floral bract and pedicel each 5-6 mm long; ovary 10 mm long; **sepals** dark purple, coarsely verrucose within, the dorsal sepal ovate, ca. 17 mm long, 8 mm wide, connate to the lateral sepals for 6 mm to form a short, cylindrical tube, the acute free portion acuminate into an erect, rigid tail ca. 25 mm long, becoming yellow toward the apex, the lateral sepals ovate, oblique, ca. 27 mm long, connate 16 mm into a lamina 19 mm wide, the acute apices acuminate into rigid tails 1.5-2 cm long; **petals** dark purple, fleshy, cuneate, unguiculate, 6 mm long, 4 mm wide, the apex broadly bilobed with an obscure, obtuse apiculum externally between the lobes; **lip** dark purple, oblong, flat, 6 mm: long, 2.5 mm wide, the obtuse apex minutely serrulate, verrucose above the middle, smooth below the middle with thin, erect margins above the subcordate base; **column** dark purple, semiterete, 4.5 mm long, the thick foot with a very short, incurved extension.

ECUADOR: **Morona-Santiago**: epiphytic in cloud forest above El Pangui, alt. 1500 m, collected by A. Andreetta & M. Portilla, cultivated by A. Andreetta in Cuenca, 1 Nov. 1982, *C. Luer 8289* (SEL); same collection, cultivated at Paute, Aug. 1990, *A. Hirtz 5041* (MO); same collection, cultivated at Colombor-quídeas, Colombia, 6 Apr. 1988, *C. Luer 13042* (MO); Cordillera del Condor, east of Chuchumbletza, alt. 1200 m, collected by A. Andreetta & M. Portilla, cultivated at Paute, 24 May 1988, *C. Luer 13630* (MO).

This species, endemic in southeastern Ecuador, is related to both *M. goliath* and *M. titan*, but readily distinguished from them by the much smaller size of the plant and flowers. In addition, the flowers are dark purple with shorter tails, verrucose sepals, smooth petals, and an oblong lip without decurved margins, and without a prominent subapical callus.

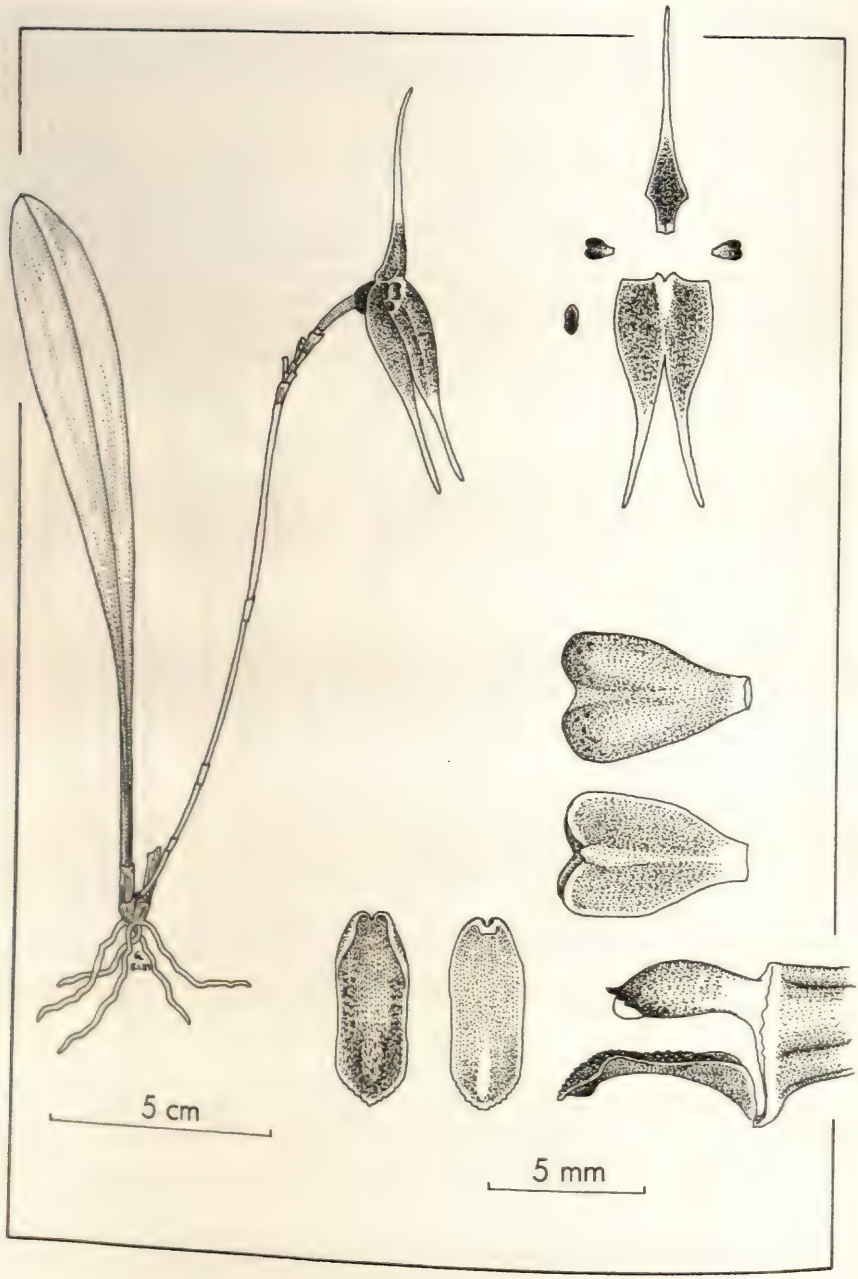


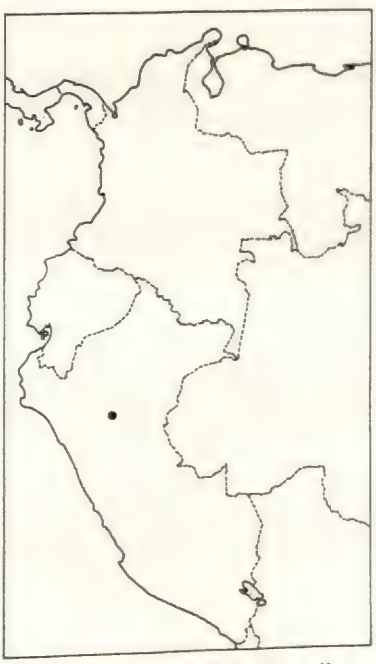
Plate 195. Masdevallia panguiënsis

Masdevallia princeps Luer, Lindleyana 9: 108, 1994.

Ety.: From the Latin *princeps*, "the chief," referring to the huge, imposing flower.

Plant large, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 2-2.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, thickly coriaceous, narrowly obovate, obtuse, 16-25 cm long, 3.5-4 cm wide, cuneate below into an indistinct petiole ca. 2 cm long. **Inflorescence** a congested, successively few-flowered raceme borne by a terete, purplish, ascending peduncle up to 38 cm long, 3 mm thick, with 3-4 close bracts below the middle, from low on the ramicaul; floral bract thin, tubular, 15 mm long; pedicel thick, 15-17 mm long; ovary 15 mm long, 5 mm thick; **sepals** rigidly fleshy, orange with dark purple spots, larger toward the center, glabrous externally, minutely glandular-pubescent within, the blade of the dorsal sepal narrowly triangular-ovate, ca. 30 mm long, 18 mm wide, the acute apex attenuated into a slender, erect, orange to green tail ca. 15 cm long, connate to the lateral sepals for 7-8 mm to form a short, conical tube, the lateral sepals connate 35 mm into a semi-orbicular synsepal, ca. 40 mm long, 45-50 mm broad, deeply concave centrally, with the margins lightly revolute, the apices obtuse, approximate, shortly attenuated into retroflexed tails ca. 15 cm long; **petals** cartilaginous, ivory, dotted with purple, minutely subverrucose, oblong, shortly unguiculate, 5.5 mm long, 3.25 mm wide, the apex truncate, bilobed with a thick, obtuse apiculum in the sinus, both halves callous, shallowly sulcate centrally; lip, orange, dotted with red-purple, thick, oblong with the apex deflexed, 6 mm long unexpanded, 8 mm long expanded, 3 mm wide, the apex thickly tricallous, verrucose, obtuse, deflexed, the disc deeply sulcate below the middle, broadly and shallowly sulcate above the middle, the base subcordate, concave to either side of the channel, hinged on the end; **column** greenish white, stout, semiterete, 3 mm long, the foot thick with a very short, incurved extension.

PERU: **San Martin**: near Tarapoto, without more specific collection data, ca. 1980, cultivated by J & L Orchids, Easton, CT, 12 March 1994, *C. Luer 17131* (Holotype: MO); near Tarapoto, obtained from M. Arias, cultivated at Hoosier Orchid Co., Indianapolis, IN, *W. Rhodehamel s.n.* (MO).



This huge species has been in cultivation since 1980. It was first identified as *M. ayabacana*, and it was erroneously cited as an additional collection of *M. goliath* in the description of that species. It is known to occur near Tarapoto in Amazonian Peru where it has been found on a few occasions. It is most closely allied to *M. regina*, from which it is readily distinguished by the acutely reflexed tails of the lateral sepals.

Masdevallia princeps is characterized by the thick, leathery leaves; a long, ascending peduncle; and large, orange, purple-spotted flowers with long sepaline tails. The lateral sepals are connate into a suborbicular, conically concave synsepal with approximate apices, and the tails are abruptly reflexed at their bases. The petals are thick, oblong, faintly subverrucose and lobulate at the apex. The apex of the lip is thickly tricallous, elongated, and deflexed.

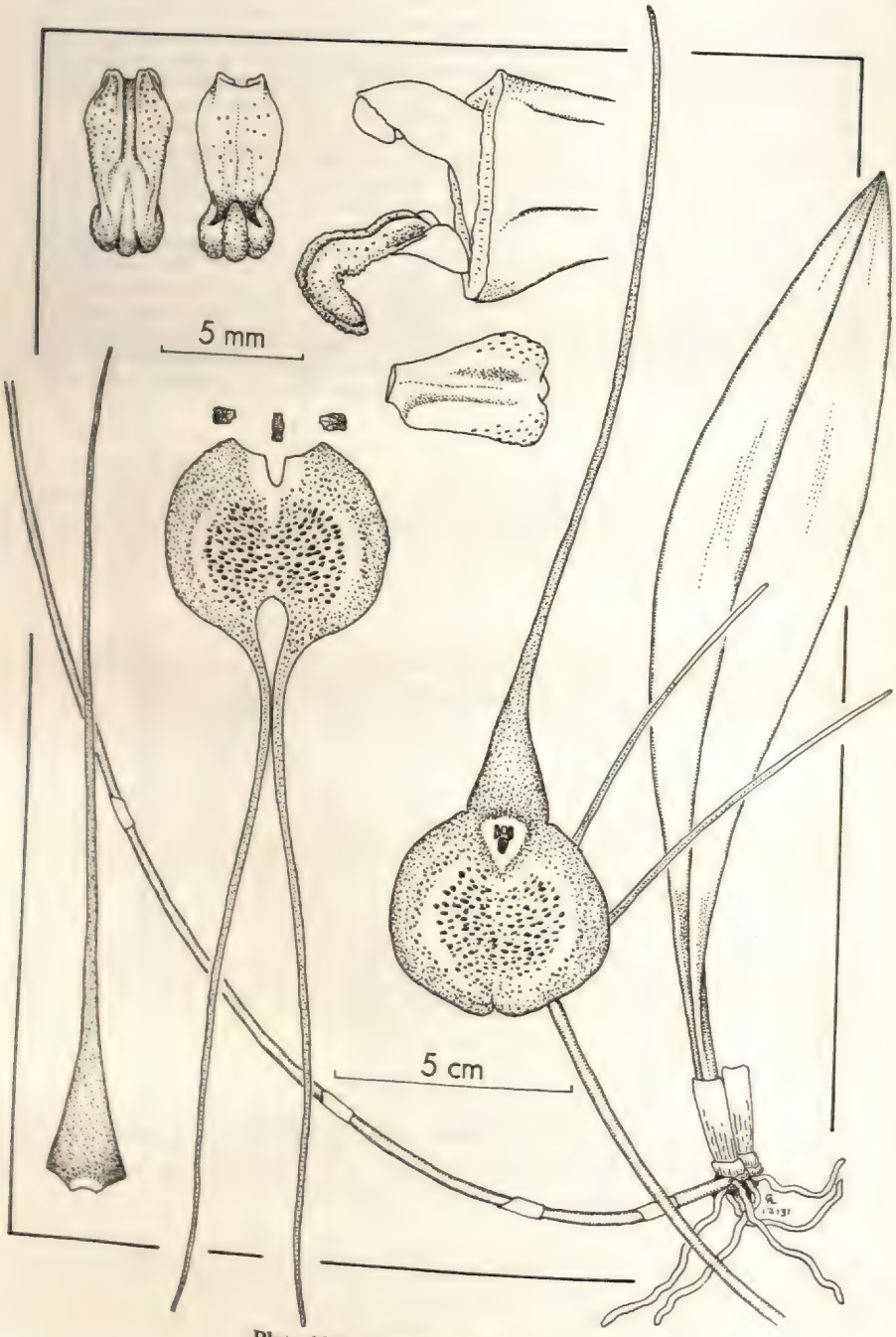


Plate 196. Masdevallia princeps

Masdevallia regina Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 65: 113, 1998.

Ety.: From the Latin *regina*, "queen," alluding to the smaller flower similar to that of *M. princeps*.

Plant medium in size to large, caespitose; roots coarse. Ramicauls stout, erect, 2-3 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, thickly coriaceous, narrowly obovate, obtuse, 15-20 cm long, 3-3.5 cm wide, gradually cuneate below into the base. **Inflorescence** a congested, successively few-flowered raceme borne by a terete, ascending peduncle up to 30 cm long, with 3-4 close bracts below the middle, from low on the ramicaul; floral bract thin, tubular, 15 mm long; pedicel thick, 20 mm long; ovary 10-12 mm long, 4 mm thick; **sepals** rigidly fleshy, glabrous externally, minutely glandular-pubescent within, the blade of the dorsal sepal narrowly triangular-ovate, ca. 20 mm long, 14 mm wide at the base, the acute apex attenuated into a slender, erect, green tail 10-11 cm long, connate to the lateral sepals for 9 mm to form a short, campanulate tube, the lateral sepals yellow-orange with dark purple flecks, as rows of bars toward the center surrounding a central, rounded convexity ca. 1 cm wide, connate across the convexity for 20 mm into a broadly ovate synsepal, ca. 40 mm long, 38 mm broad, the apices acute, approximate, shortly attenuated into slender, non-retroflexed tails 10-11 cm long; **petals** cartilaginous, ivory, dotted with purple, minutely subverrucose, oblong, shortly unguiculate, 6 mm long, 3 mm wide, the apex truncate, obscurely trilobed, both halves callous, shallowly sulcate centrally; lip orange, dotted with red-purple, thick, oblong, 7 mm long, 2.5 mm wide, with the apex obtuse, verrucose, nondeflexed, the disc shallowly sulcate on either side of a central callus above the middle, the base subcordate, concave to either side of the channel, hinged on the end; **column** greenish white, stout, semiterete, 4 mm long, the foot thick with a very short, incurved extension.

PERU: **San Martin**: near Tarapoto, obtained from M. Arias, ca. 1997, cultivated by A. Hirtz in Quito, Ecuador, 15 Feb. 1998, *C. Luer 18701* (Holotype: MO).

This species is very closely allied to *M. princeps*, with which it is reported to have been collected. It is readily distinguished from the latter by the acute apices of the lateral sepals with long, approximate tails that are not reflexed. In the center of the synsepal a well-circumscribed, round convexity is present. Whether or not this convexity is peculiar only to this clone is not possible to say at the present time. The lip is narrower with the apex obtuse without a deflexed callus.

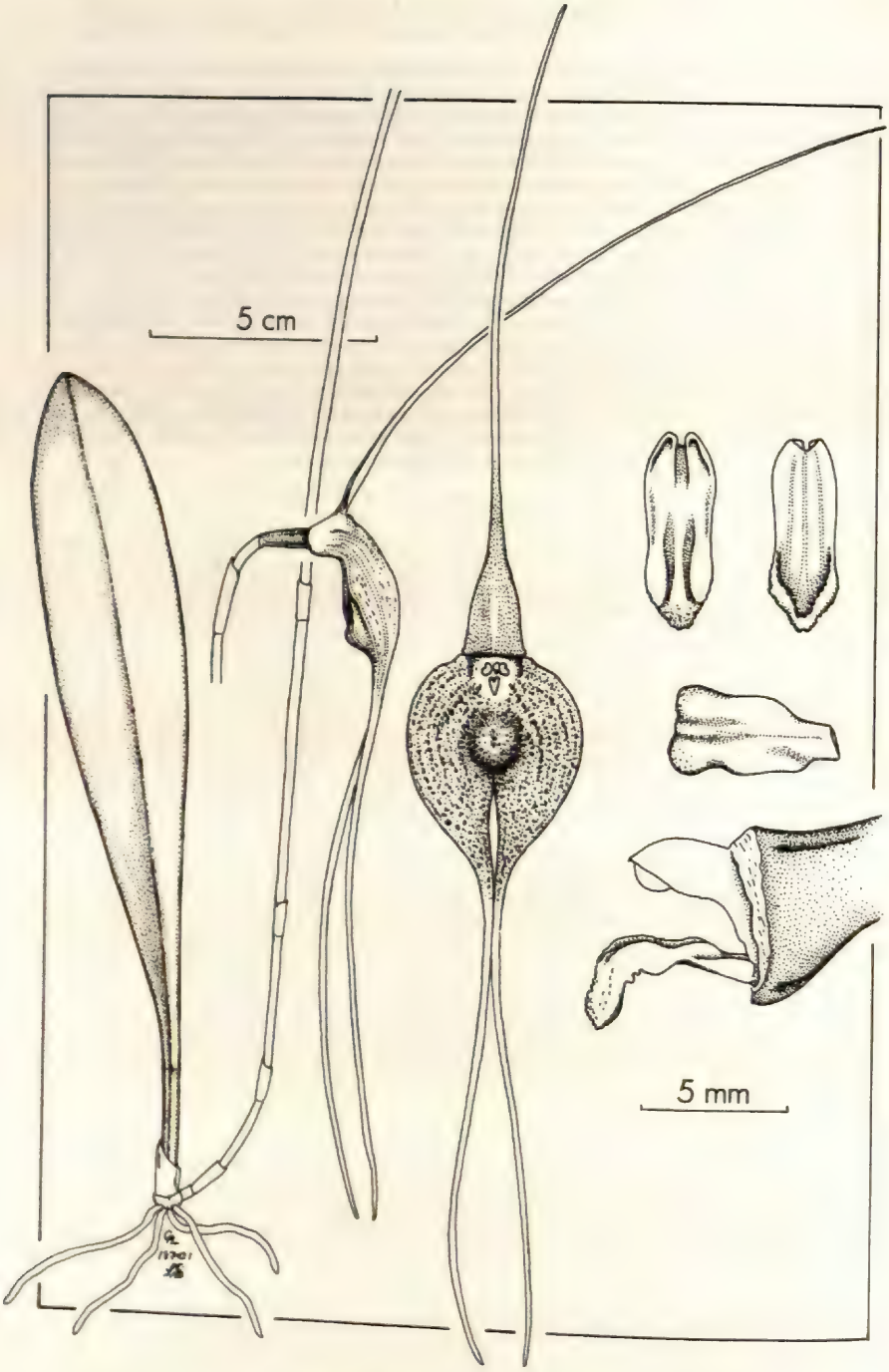


Plate 197. Masdevallia regina

Masdevallia robusta Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 72: 113, 1998.

Ety.: From the Latin *robustus*, "robust," referring to the habit

Plant large, robust, presumably epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 4-5.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 14-21 cm long including the petiole 3-5 cm long, the blade narrowly elliptical, acute, 2.5-3 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a loose, successively few-flowered raceme borne by a stout, ascending peduncle 15-22 cm long, with a bract on the lower quarter and also above the base, from near the base of the ramicaul; floral bract inflated, 15-22 mm long; pedicel 12-15 mm long; ovary 7 mm long; **sepals** dark purple, subcarinate along the veins, glabrous, the dorsal sepal obovate, 20 mm long, 16 mm wide, 3-veined, connate to the lateral sepals for 13 mm to form a broad, infundibular, non-gibbous, sepaline tube, the free portion broadly obtuse, contracted into a slender, purple tail, 5.5-6 cm long, the lateral sepals ovate, oblique, 35 mm long, connate 18 mm into a lamina 28 mm wide, 3-veined, the apices near, acute, contracted into slender tails similar to that of the dorsal sepal; **petals** light yellow, dotted with purple, thickly cartilaginous, shiny, oblong, irregularly truncate at the apex, broadly short-unguiculate at the base, 6.5 mm long, 3 mm wide, shallowly concave along the central vein, callous on both halves; **lip** thick, yellow, dotted with purple, oblong with minutely denticulate margins, 7 mm long, 3 mm wide, the apex rounded, with a minutely denticulate keel beneath, the disc minutely muricate, shallowly sulcate between a pair of low, converging calli above the middle, the base subcordate, each side concave, hinged on the end to the tip of the column-foot; **column** semiterete, 5 mm long, the foot thick with the apex of the ovary.

ECUADOR: Without collection data, obtained from a collector, cultivated at Orchideeënkwekerij, Venhuizen, The Netherlands, 25 July 1998, *A.P. Sijm 16520* (Holotype: MO), C. Luer illustr. 18876.

Within the section *Durae*, this large species, cultivated without collection data, but reportedly from Ecuador, is most closely allied to *M. ayabacana* from Peru. It differs from the latter, as well as from the other members of the section, by acute, distinctly petiolate leaves. From *M. ayabacana* it also differs in a non-gibbous sepaline tube; non-contiguous apices of the lateral sepals; oblong petals; and a lip with a keel beneath the apex as well as with well-developed basal recesses as seen in *M. dura*.

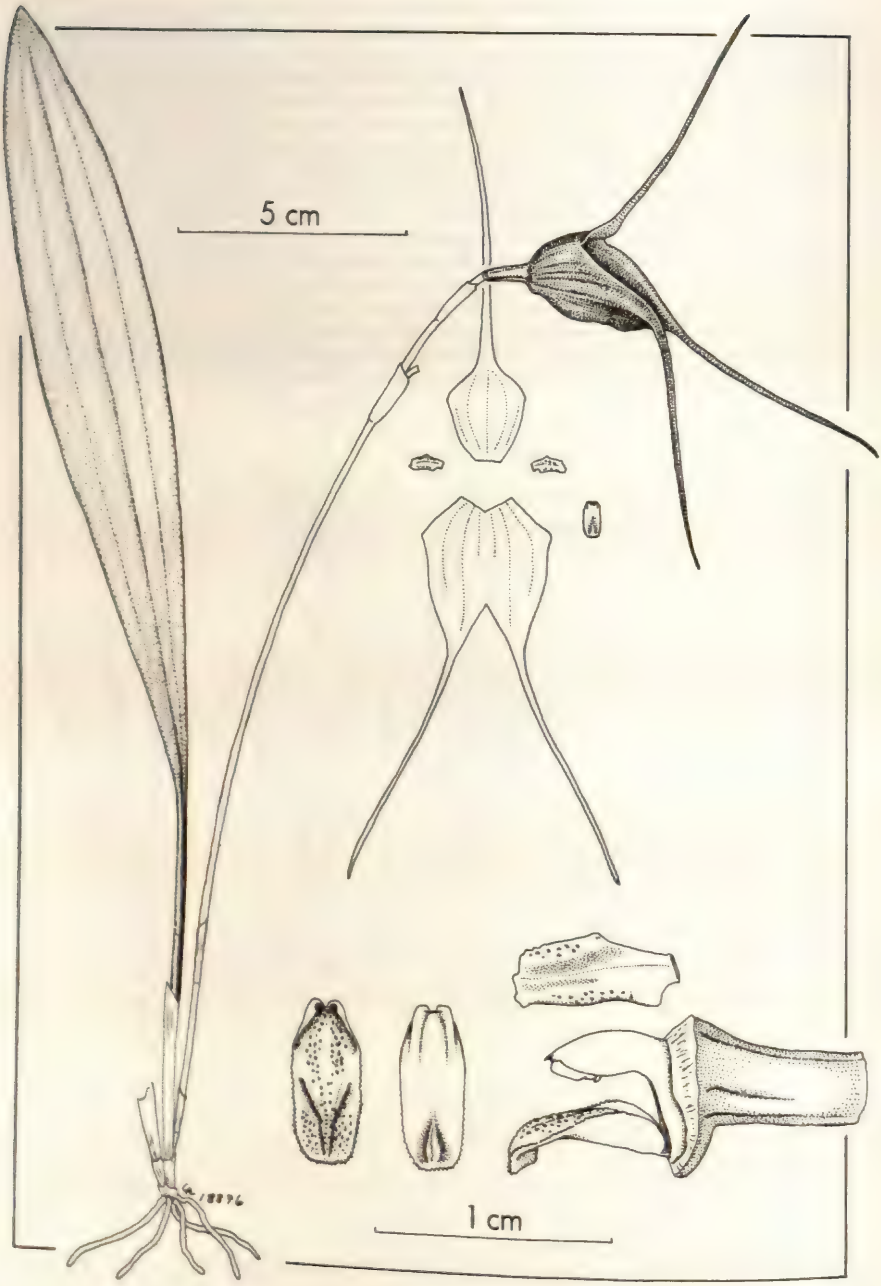


Plate 198. Masdevallia robusta

Masdevallia titan Luer, Harvard Papers in Botany 9: 6, 1996.

Ety.: Named for the Titans, the mythological, giant siblings of Uranus and Gaea.

Plant large, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 2-3.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, thickly coriaceous, narrowly obovate, obtuse, 17-20 cm long, 4-4.5 cm wide, gradually narrowed below into an indistinctly petiolate base. **Inflorescence** a loose, successively few-flowered raceme borne by a terete, purplish, horizontal to ascending peduncle 30-40 cm long, with 2-3 bracts below the middle, from low on the ramicaul; floral bract tubular, 15 mm long; pedicel 15-18 mm long; ovary 12 mm long; **sepals** fleshy, rigid, dark red-brown, glabrous externally, glandular-pubescent within, the dorsal sepal narrowly triangular, long-attenuate, 12-17 cm long, 15 mm wide, connate to the lateral sepals for 7 mm to form a short, broad, conical tube, the lateral sepals connate ca. 3 cm into an ovate lamina, deeply concave centrally and cellular papillose, 4-5 cm long, 27-30 mm wide, the acute apices approximate and attenuated into tails 12-13 cm long, the entire length 13-18 cm; **petals** cartilaginous, yellow, dotted with purple, minutely verrucose, broadly oblong, shortly unguiculate, 5 mm long, 3.5 mm wide, the truncate apex obscurely bilobed with a thick, obtuse apiculum in the sinus, both halves callous, shallowly sulcate centrally; lip, yellow-orange, dotted with red-purple, thick, oblong-ligulate, 7.5 mm long, 3 mm wide, the apical third verrucose, the apex rounded with thick, revolute margins, the disc longitudinally sulcate, the base subcordate, concave between elevated margins, hinged beneath; **column** greenish white, stout, semiterete, 4 mm long, 2 mm thick, the foot thick with a very short, incurved extension.

PERU: **Amazonas**: near Tarapoto, collected by M. Arias, cultivated at Colomborquídeas, 6 July 1996, *C. Luer 17967* (Holotype: MO); plant from the same source, cultivated at J & L Orchids, Easton, CT, 10 May 1995, *C. Luer 17500* (MO).

This large, robust species is closely allied to Ecuadorian *M. goliath*, and for the few years since its introduction, it has been confused with the latter. *Masdevallia titan* is distinguished from the latter by the somewhat larger habit and larger flowers. The synsepal projects forward with an angle of about 90° between the erect dorsal sepal and the synsepal. The synsepal is deeply concave centrally, where the surface is covered by papillary cells, larger than those of the dense, short pubescence that covers the interior of the sepals. The synsepal of the widely spread, flat flower of *M. goliath* is shallowly concave. The apices of the lateral sepals of both species are approximate and long-attenuate. The petals and lip of the two species are very similar. When the flowers of the two species are seen together, the differences are easily recognized.

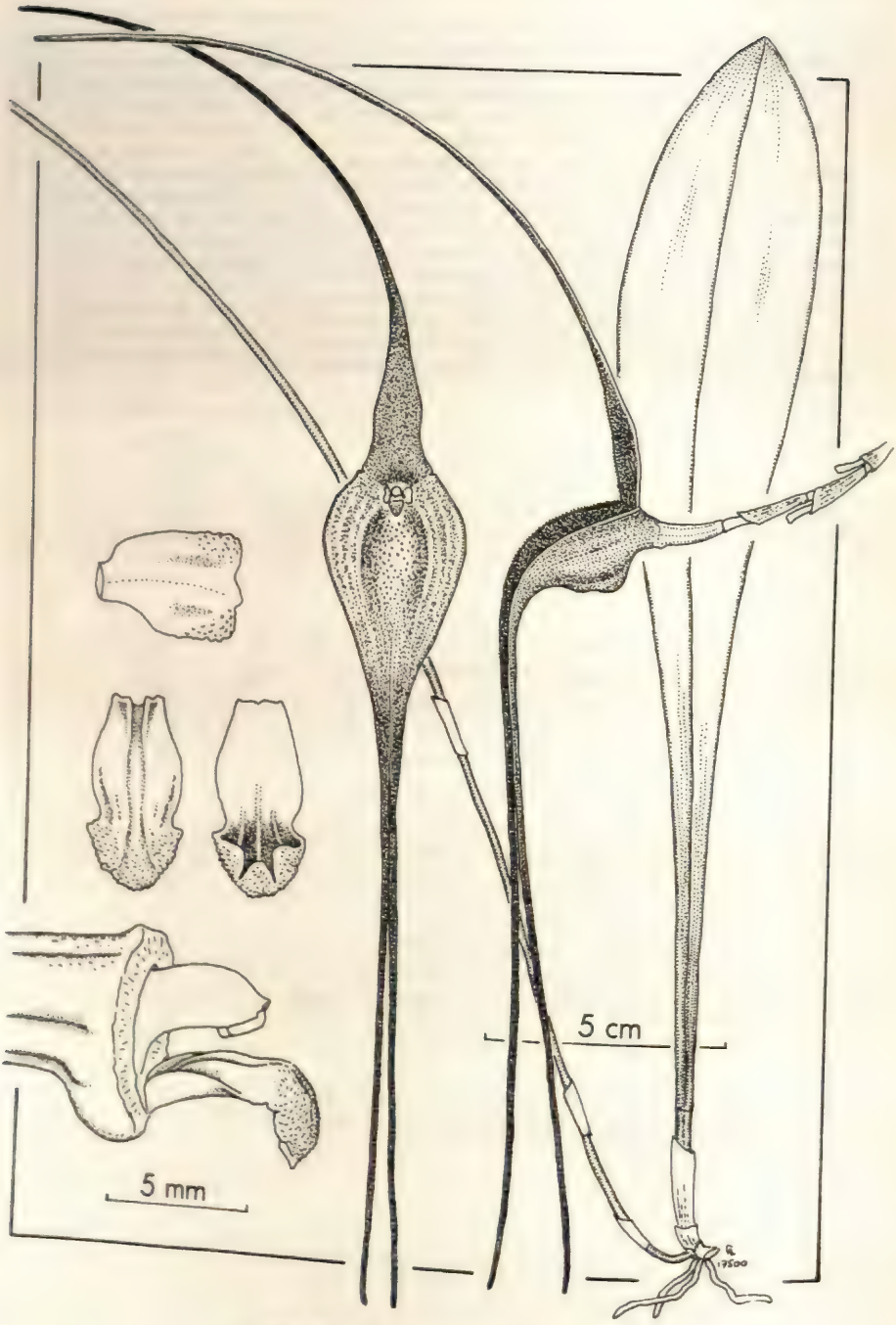


Plate 199. Masdevallia titan

Masdevallia utriculata Luer, Phytologia 44: 169, 1979.

Ety.: From the Latin *utriculatus*, "with small bladders," referring to the base of the lip.

Plant small to medium in size, epiphytic, caespitose; roots coarse. Ramicauls slender, erect, 1-1.5 cm long, enclosed by 2-3 thin, close, tubular sheaths. **Leaf** erect, coriaceous, 6-8.5 cm long including an indistinct petiole 1-1.5 cm long, narrowly oblong-obovate, 1.2-1.5 cm wide, subacute to obtuse at the apex, narrowed below into the subpetiolate base. **Inflorescence** a congested, few-flowered raceme of successive flowers, borne by a stout, suberect to horizontal peduncle, 1.5-2 cm long, with a bract near the middle, from low on the ramicaul; floral bract tubular, 4 mm long; pedicel 7 mm long; ovary subverrucose with undulate ribs, 3-4 mm long; **sepals** fleshy, rigid, the dorsal sepal yellow-green, with a few purple verrucosities within, obovate, 8 8 mm long, 4.5 mm wide, connate to the lateral sepals for 5 mm into a cylindrical tube, the apex subacute, contracted into an erect, thick, subclavate, laterally compressed yellow-green tail ca. 11 mm long, the lateral sepals yellowish, studded with multiple red excrescences within, connate 15 mm to form an obovate, coarsely verrucose, bifid lamina 18-20 mm long, 13-15 mm wide expanded, with the apices subacute; **petals** yellow, spotted with purple on the labellar half, oblong, 5.5 mm long, 2 mm wide, the apex truncate-retuse, with a longitudinal callus along both borders, the upper overhanging the apex, the callus of the labellar margin distinct, ending between the basal and middle thirds; **lip** dull yellow, diffusely dotted with purple, thick, obovate, minutely verrucose, 6.5 mm long, 3 mm wide, the apex broadly rounded, verrucose, the disc shallowly sulcate between a longitudinal pair of oblique calli obtusely angled above the middle, the base bilobed-cordate, each lobe deeply saccate, hinged beneath; **column** yellow, marked with purple, semiterete, 5 mm long, the foot equally long, spotted with purple, with an incurved extension.

PANAMA: **Chiriquí**: epiphytic in cloud forest on Cerro Pate Macho, alt. ca. 2200 m, 27 Feb. 1979, *R. L. Dressler & J. Kuhn s.n.* (Holotype: SEL), C. Luer illustr. 4073; northeast of Boquete, Río Palo Alto, 19 Nov. 1978, *B. Hammel 5758* (MO).

Although this Panamanian species meets all criteria for section *Durae*: a successively flowered inflorescence, a terete peduncle, and an undivided lip with a pair of basal "nectaries," it varies in several respects from the other species. It is superficially similar to section *Coriaceae*, but it is excluded because of the successively flowered raceme.

Masdevallia utriculata is characterized by a relatively small habit; a short, horizontal peduncle; a short, successively flowered raceme; and a broadly cylindrical sepaline tube with the widely expanded, red-verrucose lateral sepals tailless. The tail of the dorsal sepal is clavate. The petals are oblong with a callous lower margin. The lip is oblong without marginal folds, but with a pair of deep concavities at the base.

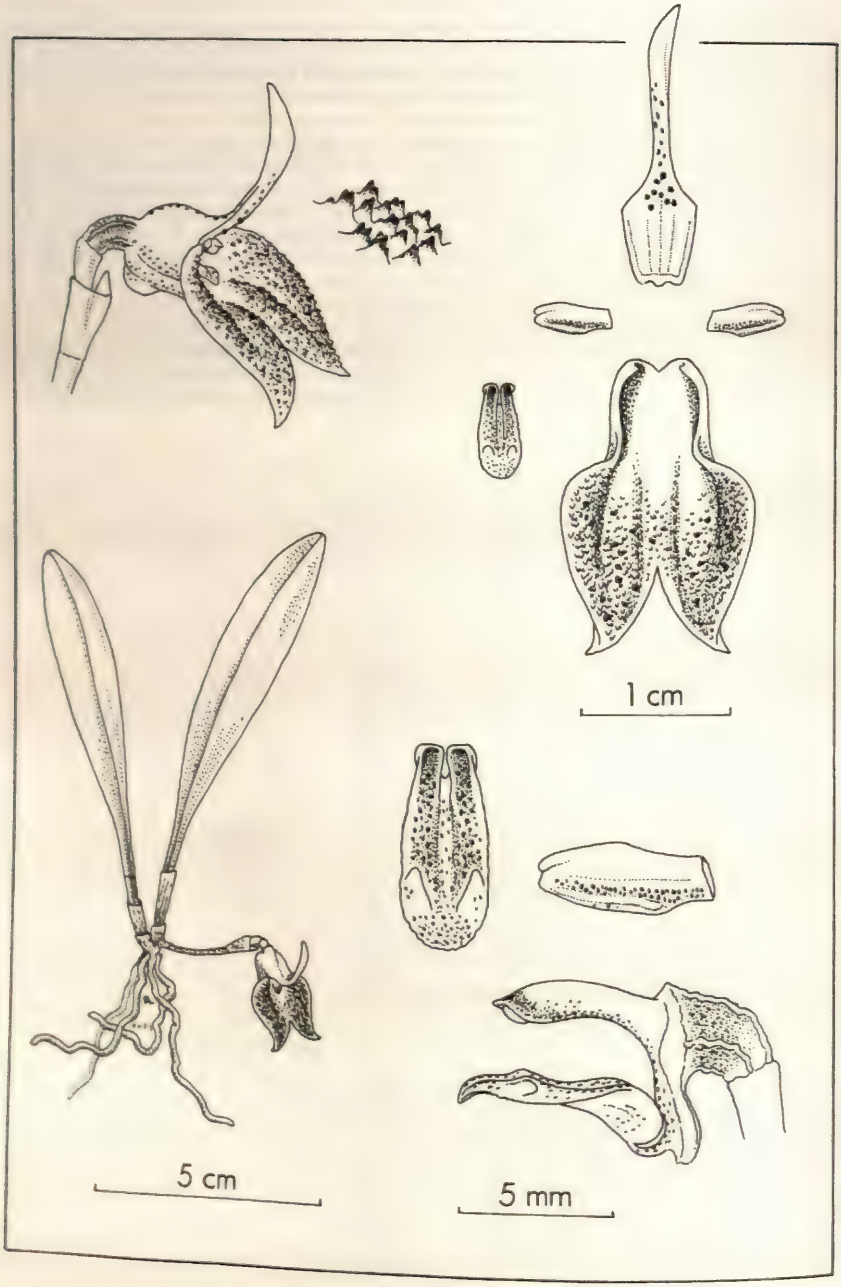


Plate 200. Masdevallia utricularia

MASDEVALLIA SECTION REICHENBACHIANAE

Masdevallia subgenus **Masdevallia** section **Reichenbachianae** Woolward, The Genus *Masdevallia* sect. X, 1896.

Type: *Masdevallia reichenbachiana* Endres ex Rchb.f., Gard. Chron n.s., 4: 257, 1875.

Ety.: Named in honor of Heinrich Gustav Reichenbach, renowned orchidologist and professor at the Hamburg Botanic Garden, son of H.G.L. Reichenbach.

Syn.: *Masdevallia* subsect. *Reichenbachianae* (Woolward) Luer, Monogr. Syst. Bot. Missouri Bot. Garden 16: 48, 1986.

This section was proposed by Florence Woolward in her Monograph of the Genus *Masdevallia* in 1896. It brings together a closely allied group of Central American species, some of which are difficult to distinguish from each other because of their similarity and intermediate forms. Woolward included seven species, to which five are added. The section is closely allied to section *Minutae*, differing mostly in the absence of a protruding callus of the petals. Superficially, *M. lankesteriana* appears to belong within section *Minutae*, but the petals are without a protruding callus. In *Icones Pleurothallidinae* II (Luer, 1986) the section was divided into two subsections, but the two species assigned to subsection *Dentatae* have now been transfered to section *Dentatae*.

Section *Reichenbachianae* is the Central American counterpart of the Andean section *Coriaceae*. Only one Andean species, *M. mejiana* from nearby Colombia, is included. No species of section *Coriaceae* is known from Central America, but one species each of sections *Dentatae* and *Durae* occur in Panama.

Vegetatively, the species of section *Reichenbachianae* are not remarkably distinct from many other medium-sized species of the genus. The peduncles are terete and either successively or singly flowered. Species of section *Coriaceae* are single-flowered. The sepals are slender-tailed and not usually as fleshy as in section *Coriaceae*, and the sepaline tube is often more or less laterally compressed. As in section *Coriaceae*, the petals are thick and callous along the labellar margin without forming a distinct process. The lip, not as thick and verrucose as in section *Coriaceae*, is also more or less oblong and shallowly sulcate centrally between a longitudinal pair of low calli that do not form marginal folds, but occasionally the calli converge.

BINOMIALS IN *MASDEVALLIA* ATTRIBUTABLE TO SECTION *REICHENBACHIANAE*

M. calura Rchb.f. ..... Plate 201.
M. chasei Luer ..... Plate 202.
M. costaricensis Rolfe = **M. marginella**
M. demissa Rchb.f. ..... Plate 203.
M. enallax Königer as *M. epallax* ..... Plate 204.
M. fulvescens Rolfe ..... Plates 205, 206.
M. funebris Endres ex Kraenzl. = **M. reichenbachiana**
M. lankesteriana Luer ..... Plate 207.
M. marginella Rchb.f. ..... Plate 208.
M. mejiana Garay ..... Plate 209.
M. normanii hort. = **M. reichenbachiana**
M. polita Luer & Sijm ..... Plate 210.

M. reichenbachiana Endres ex Rchb.f. .....Plates 211, 212.
M. reichenbachiana var. *aurantiaca* Rchb.f. = **M. reichenbachiana**
M. reichenbachiana var. *funebris* (Endres ex Kraenzl.) Kraenzl. = **M. reichenbachiana**
M. rolfeana Kraenzl. .....Plate 213.
M. schroederiana Sander ex Veitch .....Plate 214.
M. schroederiana var. *fulvescens* (Rolfe) Kraenzl. = **M. fulvescens**
M. walteri Luer .....Plate 215.

KEY TO THE SPECIES OF SECTION *REICHENBACHIANAE*

1 Inflorescence simultaneously 2-flowered; flowers yellow-white.....*M. marginella*
1' Inflorescence singly or successively flowered.....2

2 Peduncle less than 3 cm long; lip triangular; flower purple-brown.....*M. demissa*
2' Peduncle more than 3 cm long; lip oblong.....3

3 Sepals deeply connate into a cylindrical, ventricose tube.....4
3' Sepals variously connate, but not into a tube as above.....5

4 Sepaline tube constricted in distal third.....*M. polita*
4' Sepaline tube only slightly constricted at the gaping orifice.....*M. enallax*

5 Flowers small; sepals less than 4 cm long including the tail.....6
5' Flowers large; sepals more than 5 cm long including the tail.....7

6 Sepaline tube yellow, striped in purple.....*M. lankesteriana*
6' Sepaline tube white or yellowish, or variously suffused with purple, not with stripes 8

7 Sepaline tube arcuate with the lateral sepals compressed, white with yellow tails... .....*M. chasei*
7' Sepaline tube neither arcuate nor compressed, yellow-orange.....*M. walteri*

8 Sepaline tube not compressed; dorsal sepal with the apex and tail recurved.....9
8' Sepaline tube compressed; dorsal sepal decurved before the tail ascends.....10

9 Flower large with the synsepal more than 3 cm broad.....*M. reichenbachiana*
9' Flower small with the synsepal ca. 1 cm broad.....*M. mejiana*

10 Peduncle less than 4 cm long; flower dark purple.....*M. rolfeana*
10' Peduncle more than 5 cm long 11

11 Sepaline tube slender, arcuate, colors often pale.....*M. fulvescens*
11' Sepaline tube conical, more or less dilated above the middle.....12

12 Sepaline tails less than 4 cm long; sepals dark purple.....*M. calura*
12' Sepaline tails more than 6-8 cm long; sepals white, suffused with bright purple... .....*M. schroederiana*

Masdevallia calura Rchb.f., Gard. Chron. n.s., 19: 230, 1883.

Ety.: From the Greek *calura*, "beautiful tail," referring to the sepaline tails.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 1.5-2 cm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect to suberect, coriaceous, 8-12 cm long including a petiole 2-5 cm long, the blade narrowly elliptical-obovate, obtuse to rounded at the apex, 1.2-2.2 cm wide, gradually narrowed below into the petiole. **Inflorescence** a congested, successively few-flowered raceme 1-2 cm long, borne by a slender, erect to suberect peduncle, 6-10 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 10 mm long; pedicel 10-15 mm long; ovary 4-5 mm long; **sepals** deep purple, glabrous, minutely subverrucose within, the dorsal sepal oblong, 15-17 mm long, 7 mm wide, connate to the lateral sepals for 15 mm into an arcuate, conical sepaline tube, the free portion triangular, obtuse, contracted into a slender, ascending, yellow-green tail 3-4 cm long, the lateral sepals convex, connate 15-20 mm into an elliptical, bifid lamina, 20 mm long, 12-14 mm wide expanded, the apices adjacent, subacute, contracted into tails 2.5-3 cm long, similar to that of the dorsal sepal; **petals** dull white, diffusely flecked and suffused with purple, thick, oblong, obtuse to rounded at the apex, 5.5-6 mm long, 2.5 mm wide, the labellar half with a low, thick callus ending in an obtuse angle above the unguiculate base; **lip** diffusely flecked and suffused with purple, suboblong, 5.5 mm long, 2.5 mm wide, the apex obtuse, the disc microscopically subverrucose with a pair of erect, longitudinal calli in the middle two-thirds, the base cordate with erect margins, hinged beneath; **column** white, suffused with purple, semiterete, 5.5 mm long, the foot 2 mm long with a short, incurved extension.

COSTA RICA: Without locality, collected by Lehmann, imported in 1882 by Messrs. F. Sander & Co. at St. Albans, flowered in 1883, *F.C. Lehmann s.n.* (Holotype: W). **Cartago**: Cartago, alt. 6,000-7,000 ft., 1923, *C.H. Lankester 374* (AMES); Jicarila Irazú, alt. 6,000 ft., *C.H. Lankester 969* (AMES); road to Palmital, alt. 1800-2000 m, 14 Nov. 1979, *K. Walter 79418* (CR); Volcán Turrialba, alt. 2000 m, 21 Mar. 1986, *C. Luer, J. Luer, T. Linder & W. Rhodehamel 12130* (MO). **Puntarenas**: Rincón de Osa, alt. 200-300 m, 6 Feb. 1974, *R. Liesner 1760* (MO); Peninsula de Osa, Río Sierpe, alt. 100 m, 31 Mar. 1991, *B. Hammel 18182* (MO); Monteverde, Cerro Amigos, alt. 1700-1800 m, 23 May 1977, *V.J. Dryer 1374* (CR). **San José**: Cerro Zurquí, alt. 1600 m, 13 Sept. 1978, *C. Todzia 438* (CR); San Cristóbal Norte, alt. 1900 m, 8 Oct. 1978, *C. Todzia 460* (CR). **Guanacaste**: road to San Gerardo, alt. 1600 m, 9 Dec. 1989, *W. Morris & J.T. Atwood 4031* (CR, SEL).

This species was exported from Costa Rica by Lehmann to F. Sander & Co. in England. A flowering plant was forwarded to Reichenbach, and he received another from Mr. Bull. Although he chose to name this species for a beautiful tail, he maked no reference to the sepaline tails other than that they "surpass the length of the floral body."

Although vegetatively similar to most of the other medium-sized species of the genus, *M. calura* is distinguished by the peduncle nearly as long as the leaf, and bears a congested, successively few-flowered raceme of deep purple flowers. The sepaline tube is conical with an obsolescent chin. The lateral sepals are concave, convex within, nearly in apposition. The purple petals are oblong and obtuse; the oblong, obtuse lip bears an elevated, longitudinal callus.

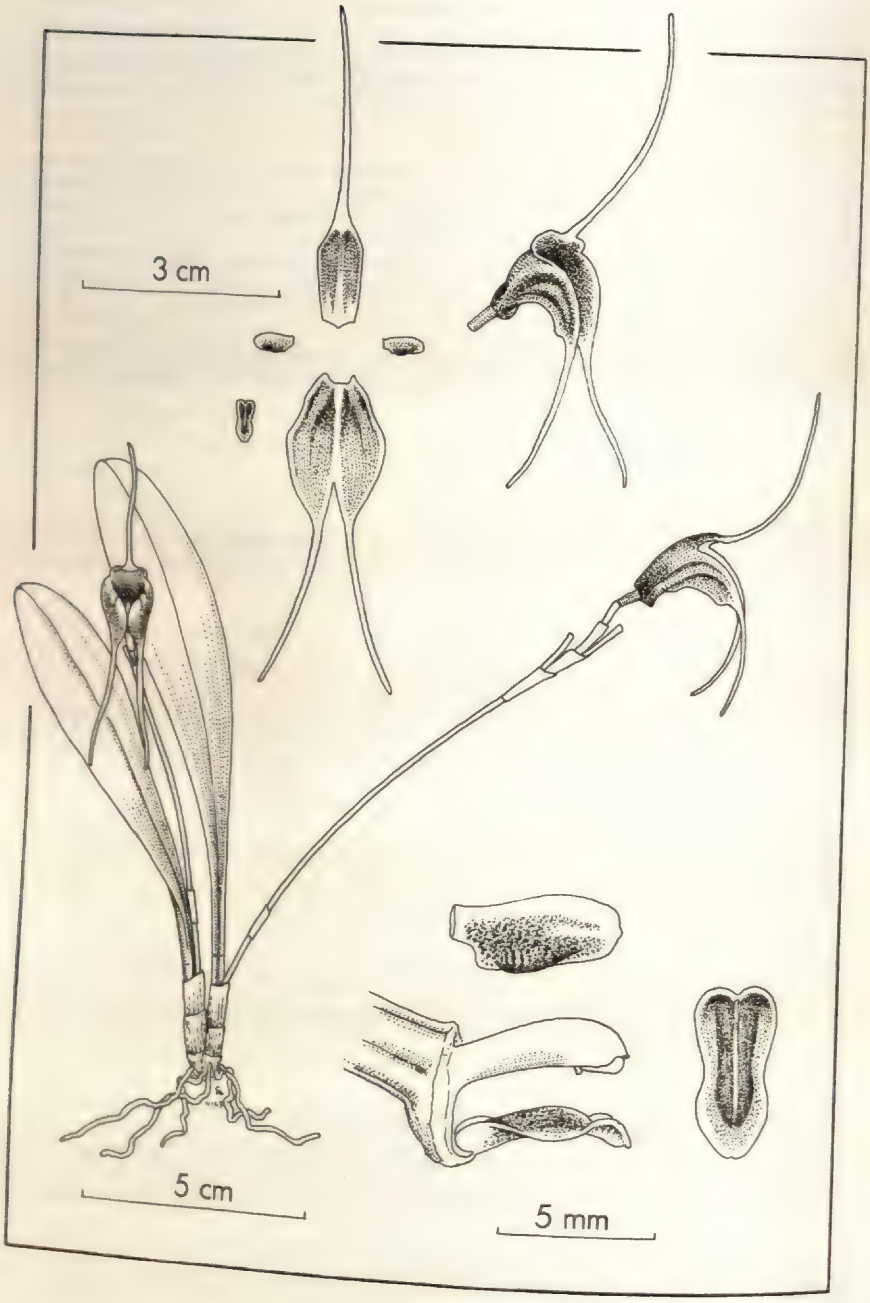


Plate 201. Masdevallia calura

Masdevallia chasei Luer, Phytologia 46: 394, 1980.

Ety.: Named in honor of Dr. Mark Chase of the Royal Botanic Gardens, Kew, who with Dr. Kerry Walter first discovered this species.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 1-3 cm long, enclosed by 2-3 thin, loose, tubular sheaths. **Leaf** erect, coriaceous, 5-13 cm long including the petiole 2-5 cm long, the blade narrowly obovate, subacute to obtuse, 1-1.4 cm wide, gradually narrowed below into the slender petiole. **Inflorescence** a solitary flower, usually followed by a second, borne by an erect to suberect peduncle, 4-8 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 10-12 mm long; pedicel 18-20 mm long; ovary 5-6 mm long; **sepals** light yellow, veined in purple toward the base, glabrous, the dorsal sepal oblong, 17 mm long, 7 mm wide, connate to the lateral sepals for 15 mm to form a curved, cylindrical, laterally compressed tube, the free portion triangular, with the apex obtuse, contracted into a forwardly directed, slender, yellow tail ca. 1.5 cm long, the lateral sepals connate 18 mm into an elliptical-ovate, arcuate lamina 22 mm long, 15 mm wide expanded, bifid into subacute apices, contracted into tails ca. 1 cm long; **petals** dark rose, oblong-elliptical, both halves longitudinally thickened, 4.5 mm long, 2 mm wide, the apex obtuse to rounded, the labellar margin slightly dilated; **lip** rose, oblong-subpandurate, 5 mm long, 2 mm wide, the apex obtuse, thickened centrally, minutely verrucose with erose margins, the disc with a short pair of rounded lamellae just above the middle, the base shallowly subcordate, hinged on the end; **column** light green, suffused with rose, semiterete, 4 mm long, the foot stout, 2 mm long, with a short, incurved extension.

COSTA RICA: **Puntarenas**: epiphytic near Monteverde Forest Preserve, alt. 1500-1700 m, 15 Aug. 1979, *K.S. Walter & M. Chase 79306* (Holotype: SEL; Isotype: CR); Monteverde, Pacific watershed, alt. 1450-1650 m, 11 Oct. 1975, *W. Burger & R. Baker 9665* (CR, F); Monteverde, Cerro Amigos, alt. 1700-1800 m, 23 May 1977, *V.J. Dryer 1390* (CR); along path leading to the entrance of the Forest Preserve, alt. 1400 m, 24 June 1981, *C. Luer & A. Luer 6416* (SEL); Monteverde, alt. 1700 m, 24 Aug. 1985, *W. Haber 2334* (MO); Peñas Blancas, 27 July 1986, *W. Haber & E. Bello 5780* (MO); Upper San Gerardo, alt. 1550 m, 20 Nov. 1988, *W. Haber & W. Zuchowski 8807* (CR, MO). **Guanacaste**: Abangares, upper San Gerardo Valley, Monteverde, alt. 1500 m, 12 Oct. 1989, *W. Haber & W. Zuchowski 9551* (CR, MO); Abangares, north on Monteverde, alt. 1500 m, 12 Oct. 1989, *W. Haber & W. Zuchowski 9551* (CR, MO); road to Gerardo, alt. 1660 m, 9 Dec. 1989, *W. Morris & J.T. Atwood 4032* (CR, SEL); Tilaran, Monteverde, alt. 1500 m, 15 Aug. 1995, *D. Penneys 653* (INB, MO)

This species is endemic to the forests within and surrounding the Monteverde Forest Preserve where it is not uncommon. Vegetatively, it is similar to most other medium-sized species. The inflorescence is basically similar to most of the others in the section: a more or less laterally compressed, light yellow, arcuate flower usually followed by a second; thick, obtuse, toothless petals; and a comparatively simple, oblong lip.

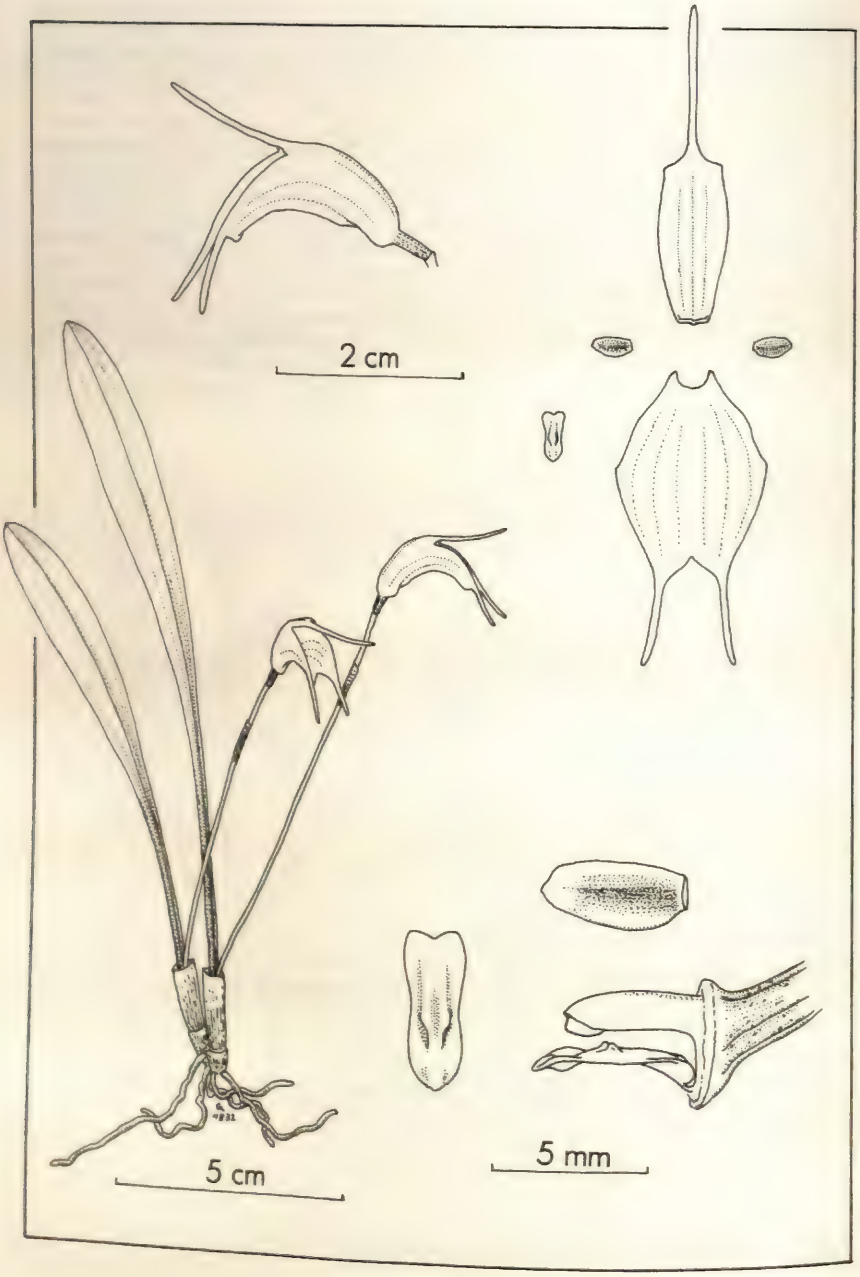


Plate 202. Masdevallia chasei

Masdevallia demissa Rchb.f., Gard. Chron. ser. 3, 2: 9, 1887.

Ety.: From the Latin *demissus*, "drooping, humble," referring to the habit of the plant.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 1-2.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 8-13 cm long including the petiole 2-3.5 cm long, the blade narrowly elliptical, obtuse, 1.2-1.7 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a single flower borne by a slender, erect to suberect peduncle 2-3 cm long, with a bract above the base, from low on the ramicaul; floral bract tubular, 7-10 mm long; pedicel 10-15 mm long; ovary 5 mm long; dorsal sepal dull yellow within, suffused with red-brown externally, glabrous, obovate, 13 mm long, 6 mm wide, connate to the lateral sepals for 10 mm to form a cylindrical, sepaline tube, the subacute, triangular, free portion contracted into a slender, orange, up-curved tail 20-22 mm long; lateral sepals dull reddish purple-brown, lightly verrucose within, ovate, oblique, 20 mm long, connate 16 mm into a lamina 13 mm wide with a shallow secondary mentum, the acute apices contracted into slender, yellow, recurved tails 10-15 mm long; **petals** purple, elliptical, obtuse, 5 mm long, 2 mm wide, the labellar margin thickened, with an obtuse angle above the base; **lip** covered with confluent, red-purple dots, narrowly triangular, the apex acute, orange, the disc with a longitudinal callus with a pair of marginal calli above the middle, the base subcordate, hinged beneath; **column** white, semiterete, 5 mm long, the foot 2 mm long with an incurved extension.

COSTA RICA: without locality or collector, imported, 1887, by *Messrs. Shuttleworth and Carder s.n.* (Holotype: W, Isotype: K). **Cartago**: near Cartago: alt. 1425 m, 28 Mar. 1924, *P.C. Standley 39247* (AMES). Without locality or collector, obtained from J & L Orchids, Easton, CT, cultivated at Colomborquídeas, El Retiro, Colombia, 9 May 1985, *C. Luer 11313* (MO).

The firm of Shuttleworth & Carder of Clapham, England, first imported this species from Costa Rica, but without collection data. It was soon widely cultivated. It is apparently seldomly collected, but nevertheless, it is still well represented in collections today.

Vegetatively, *M. demissa* is average in size, and distinguished by a small, brownish flower borne by a short peduncle. The sepals are lightly verrucose within with slender, recurving tails about as long as the blades, and the lip is narrowly triangular.

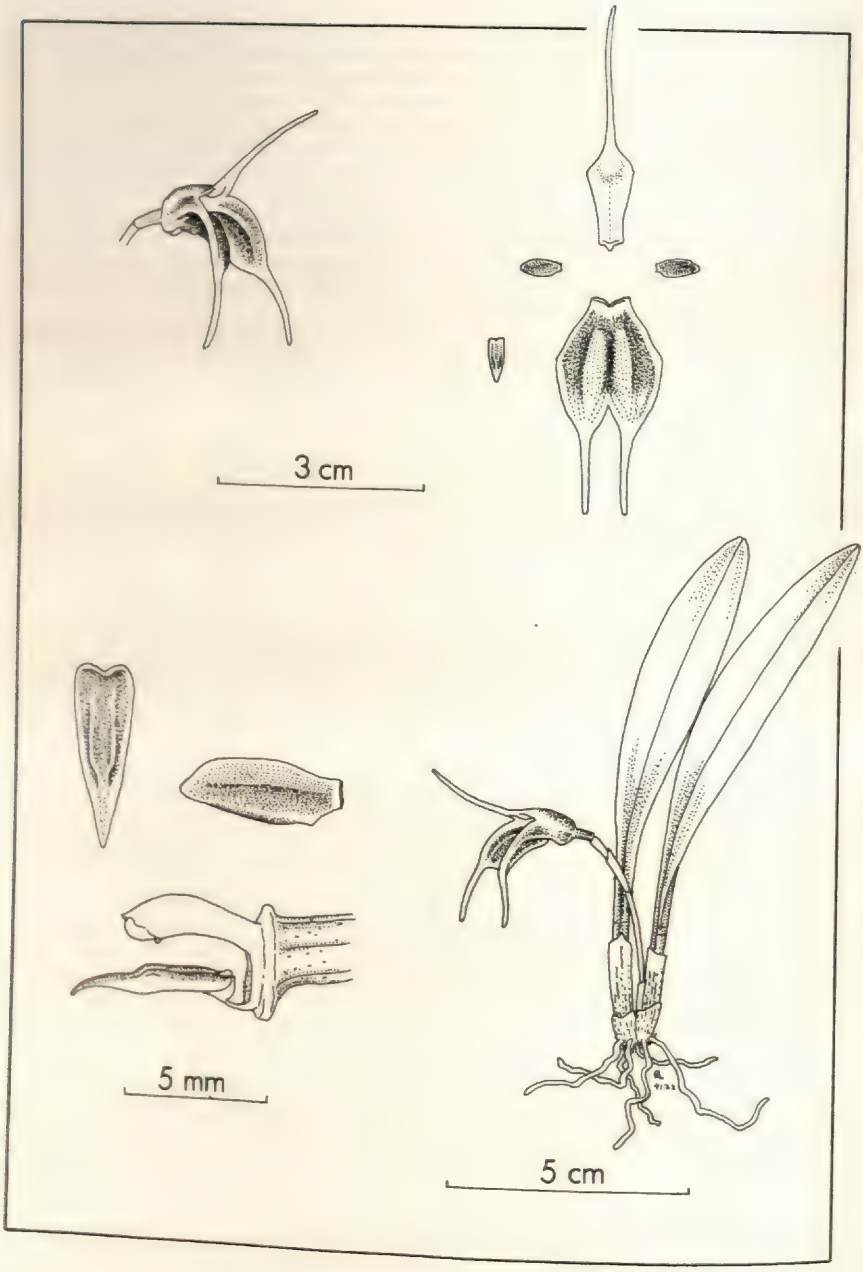


Plate 203. Masdevallia demissa

Masdevallia enallax Königer, Arcula 2: 33, 1994, as *M. epallax*.

Ety.: From a mistaken word, there being no *epallax* known in Greek. However, the Greek *enallax*, "crosswise," referring to the crossed tails, was no doubt intended.

Plant medium in size, in cultivation only, caespitose; roots slender. Ramicauls slender, erect, 2-3 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 9-12 cm long including the petiole 2-2.5 cm long, the blade elliptical, subacute, 1.5-2 cm wide, the base narrowly cuneate into the slender petiole. **Inflorescence** a solitary flower, usually followed by a second, borne by a slender, suberect peduncle 5-7 cm long, with a bract above the base, from low on the ramicaul; floral bract 10 mm long; pedicel 12 mm long; ovary 6-8 mm long; **sepals** suffused with purple, more darkly along the veins, orange at the base, glabrous externally, microscopically pubescent within, the blade of the dorsal sepal obovate, 23 mm long, 11 mm wide, connate to the lateral sepals for 18 mm into a cylindrical tube, the free portion triangular, obtuse, contracted into an erect, slender, yellow-green tail 15 mm long, the lateral sepals connate 24 mm into a broadly elliptical, ventricose lamina 28 mm long, 18 mm wide expanded, the apices obtuse, contracted into tails similar to that of the dorsal sepal; **petals** pale yellow, oblong, 8.5 mm long, 2.5 mm wide, the apex obtuse, obscurely bilobed, with a low, longitudinal callus along the labellar half terminating in a low, rounded callus at the base; **lip** yellow-green, suffused and dotted with purple, oblong, obtuse, 9.5 mm long, 3.25 mm wide, the disc with a pair of low, smooth, longitudinal calli near the middle, the base very shallowly concave, subtruncate, hinged beneath; **column** pale green with purple margins, semiterete, 6.5 mm long, the foot thick, 3 mm long with a thin, incurved extension.

Without collection data, cultivated in Munich, Germany, by *W. Königer WK-1* (Holotype: M; clonotypes K, Herb. Helga Königer); cultivated by A.P. Sijm in Venhuizen, the Netherlands, Mar. 1999, *C. Luer 19078* (MO).

This plant was reported to have been in cultivation in Munich, Germany, by Willibald Königer for about ten years at the time it was described in 1994. There are no collection data, the plant apparently having appeared spontaneously in a pot with *M. marginella*. Therefore, it was thought that the country of origin might have been Costa Rica. However, a single, cultivated plant with a strange flower and without collection data is usually a spontaneous hybrid, or an artificial hybrid of forgotten origin. *Masdevallia ligiae* and *M. senghasii* immediately come to mind. Hybrids, sometimes of recognizable parentage, but more often not, continually appear in the open greenhouses of Colomborquídeas in Colombia, but much less commonly in closed greenhouses.

Although the deeply connate sepaline tube would suggest subsection *Saltatrices*, a successive flower, and petals without a protruding, callous process, suggest a relationship with the Costa Rican species of section *Reichenbachianae*. Vegetatively similar to species of section *Reichenbachianae*, this plant is distinguished by a purple, broadly cylindrical flower with a ventricose dilatation, much greater than that of *M. rolfeana*. The toothless petals and entire lip also are in agreement with the *Reichenbachianae*. Therefore, this taxon is included here for its similarities and the ease of identification.

A similar plant with a similar story has also appeared in the large collection of A.P. Sijm in the Netherlands. It differs mostly in the shape of the sepaline tube. Merely for the sake of identification of these two taxa, they are included here.

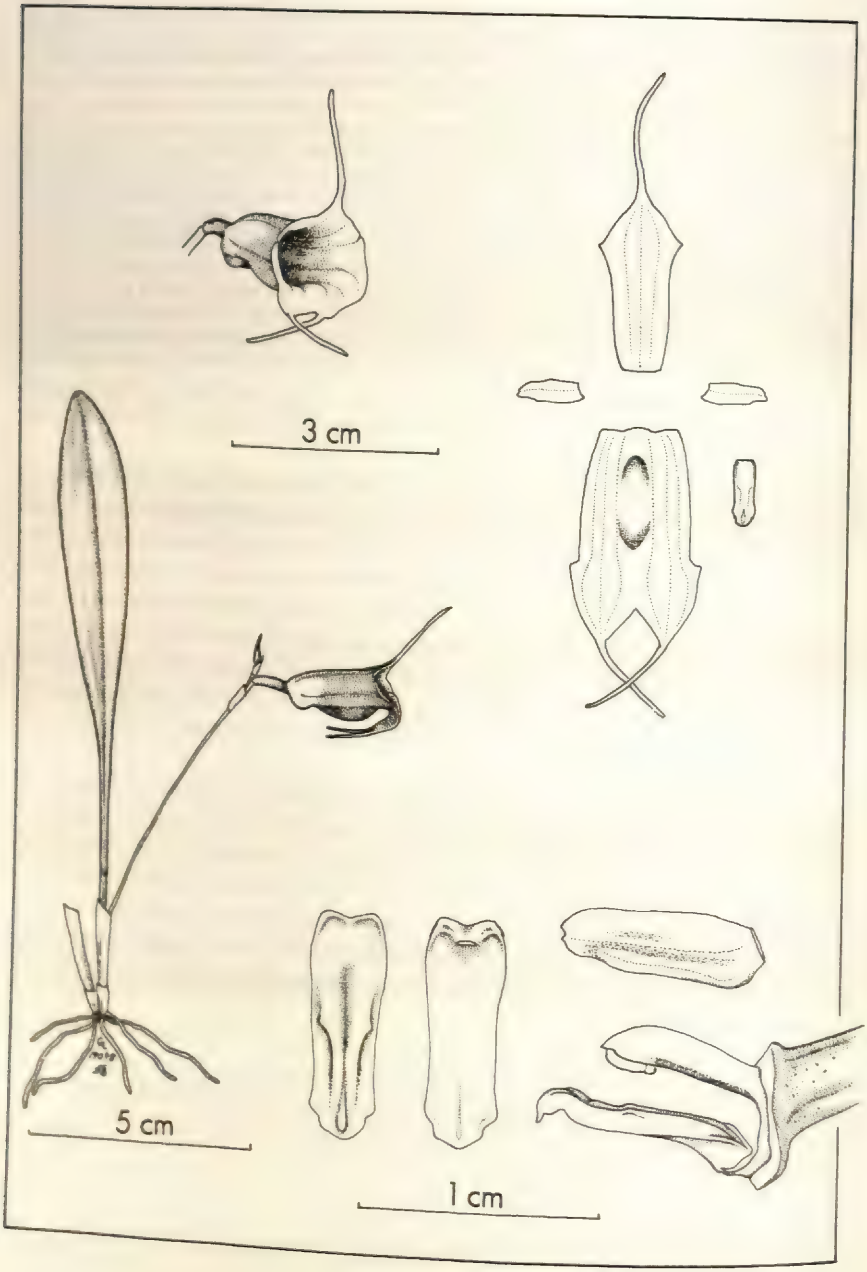


Plate 204. Masdevallia enallax

Masdevallia fulvescens Rolfe, Gard. Chron. ser. 3, 8: 325, 1890.

Ety.: From the Latin *fulvescens*, "tawny," referring to the yellowish brown color of the flowers.

Syn.; *Masdevallia schroederiana* var. *fulvescens* (Rolfe) Kraenzl., Repert. Spec. Nov. Regni Veg. Beih. 34: 83, 1925.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 1-1.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 6-11 cm long including the petiole 1.5-2.5 cm long, the blade elliptical, subacute to obtuse, 1-1.7 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a single flower borne successively in a few-flowered raceme by a slender, erect pecuncle 7-10 cm long, with a bract above the base, from low on the ramicaul; floral bract tubular, 10-15 mm long; pedicel 12-20 mm long; ovary 4-7 mm long; **sepals** light yellow, suffused with dull purple-brown mostly on the lateral sepals, glabrous, the dorsal sepal narrowly obovate, 20 mm long, 8 mm wide, connate to the lateral sepals for 15-18 mm to form a narrowly cylindrical, slightly arcuate, slightly laterally compressed, sepaline tube, the free portion triangular, acute, contracted into a slender, forwardly directed, yellow-green tail, 5-7 cm long, the lateral sepals obovate, oblique, 25-27 mm long, connate 18-23 mm to form a lamina 14-16 mm wide, the free portions narrowly ovate, oblique, acute, contracted into slender tails 4-5.5 cm long, similar to that of the dorsal sepal; **petals** white, oblong, more or less lightly dotted with purple, 5-6 mm long, 2.5 mm wide, the apex obtuse, the labellar half with a broad, longitudinal callus; **lip** white, dotted with purple, oblong-subpandurate, subacute, the tip recurved, 6 mm long, 2.5 mm wide, the disc with a pair of low, longitudinal calli, the base subcordate, hinged beneath; **column** white, semiterete, 5 mm long, the foot 1 mm long with an incurved extension.

COSTA RICA: without locality, imported by *F. Horsman s.n.* (Holotype: K); without locality, collected by L. Glicenstein, cultivated by P. Jesup in Bristol, CT, 24 Nov. 1977, *C. Luer 2240* (SEL); without locality, cultivated at Colomborquídeas, Apr. 1991, *C. Luer 15266* (MO). **San José**: cloud forest between Casamata and Sierra, alt. 1500-2000 m, Aug. 1981, collected by C. Horich, imported by the Herrenhausen Botanical Garten, Hannover, cultivated in Munich by *W. Königer s.n.* (M; Herb. H. Königer); same collection, cultivated 10 Sept. 1986, *C. Luer 11601* (MO).

The specimen, originally described by Rolfe, had been imported by Messrs. F. Horsman and Co. of Colchester, England, supposedly from Colombia, but there is no doubt that its true origin was Costa Rica. It has never been collected in Colombia; its affinity is with the Costa Rican species, and it has been found growing there on several occasions.

Masdevallia fulvescens seems most closely allied to *M. schroederiana*, and it seems to be little more than a depauperate or a poor form of the latter. It is recognized by the pale yellowish flower variously suffused with purple, and with a compressed, narrowly cylindrical, arcuate sepaline tube with long, slender tails. The petals and lip are similar to those of *M. schroederiana* and its close allies.

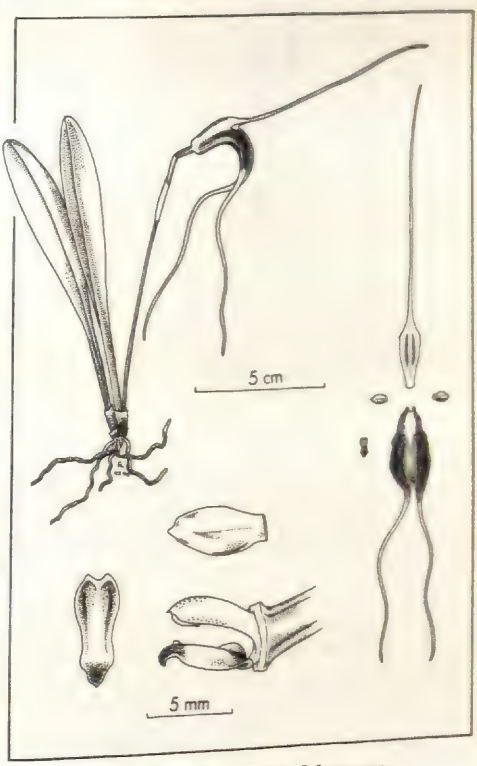


Plate 205. Masdevallia fulvescens

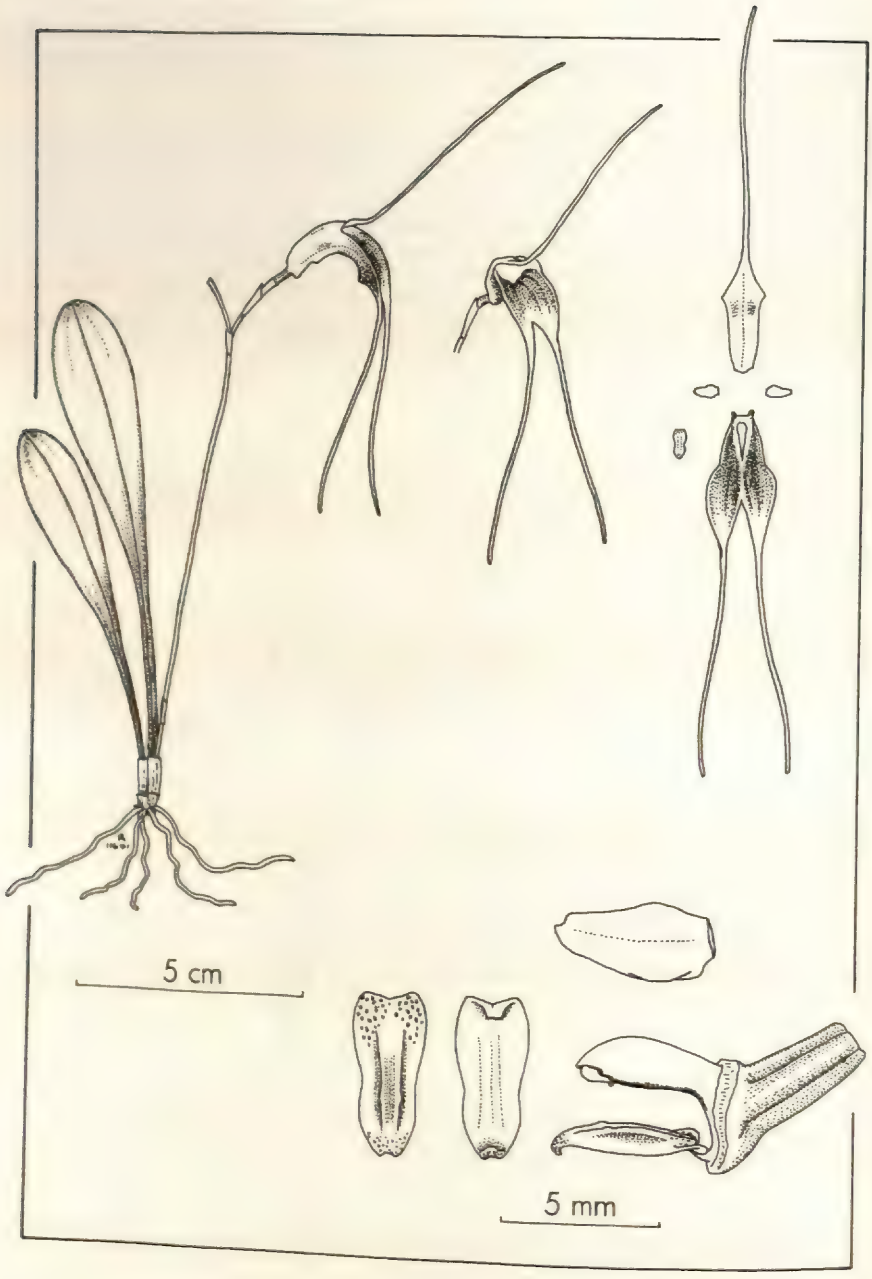


Plate 206. Masdevallia fulvescens

Masdevallia lankesteriana Luer, Lindleyana 10: 20, 1995.

Ety.: Named in honor of Charles Lankester whose garden eventually became the Lankester Gardens at Cartago, Costa Rica.

Plant medium in size, caespitose; roots coarse. Ramicauls erect, 1-1.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 8-12 cm long including the petiole 2.5-3 cm long, the blade narrowly obovate, subacute to obtuse, 1.2-1.5 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a single flower produced successively in a congested, few-flowered raceme by a slender, erect peduncle 9-11 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 10 mm long; pedicel 15 mm long; ovary 5 mm long; **sepals** fleshy, glabrous, dull rose with dark purple stripes, the dorsal sepal 3-striped, obovate, 15 mm long, 9 mm wide, connate to the lateral sepals for 12 mm to form a cylindrical, sepaline tube, the apex subacute or obtuse, contracted into an antrorse, purplish tail 23 mm long, 1.5 mm thick, the lateral sepals rose, each 3-striped with dark purple, connate 14 mm into an obovate, bifid lamina, 18 mm long, 18 mm wide, the apices subacute, contracted into thick tails 15 mm long; **petals** white with purple midvein, oblong, 6 mm long, 3 mm wide, the apex rounded, the labellar margin with a low, longitudinal callus ending in a thick angle below the middle, the base subunguiculate; **lip** pale rose, dotted with purple above and below the middle, oblong-subpandurate, 6 mm long, 3 mm wide, the apex rounded. acutely decurved, the disc with a pair of low, longitudinal calli, obtusely angled above the middle, the base cordate, each side concave with thin erect margins, hinged beneath; **column** white, semiterete, 5.5 mm long, the foot 3 mm long with an incurved extension.

COSTA RICA: Without collection data, flowered in cultivation at Lankester Gardens, Cartago, Costa Rica, 7 May 1995, *C. Luer 17383* (Holotype: CR; Isotype: MO).

With the yellowish, cylindrical, sepaline tube prominently striped with purple, this species superficially resembles the frequent, morphologically variable *M. striatella*. From the latter it is distinguished by the larger habit; much longer, terete peduncles; and longer sepaline tails as long as or longer than the blades. The petals are obtusely callous on the labellar margin. The lip is oblong with a recurved apex, and with a pair of low, longitudinal calli.

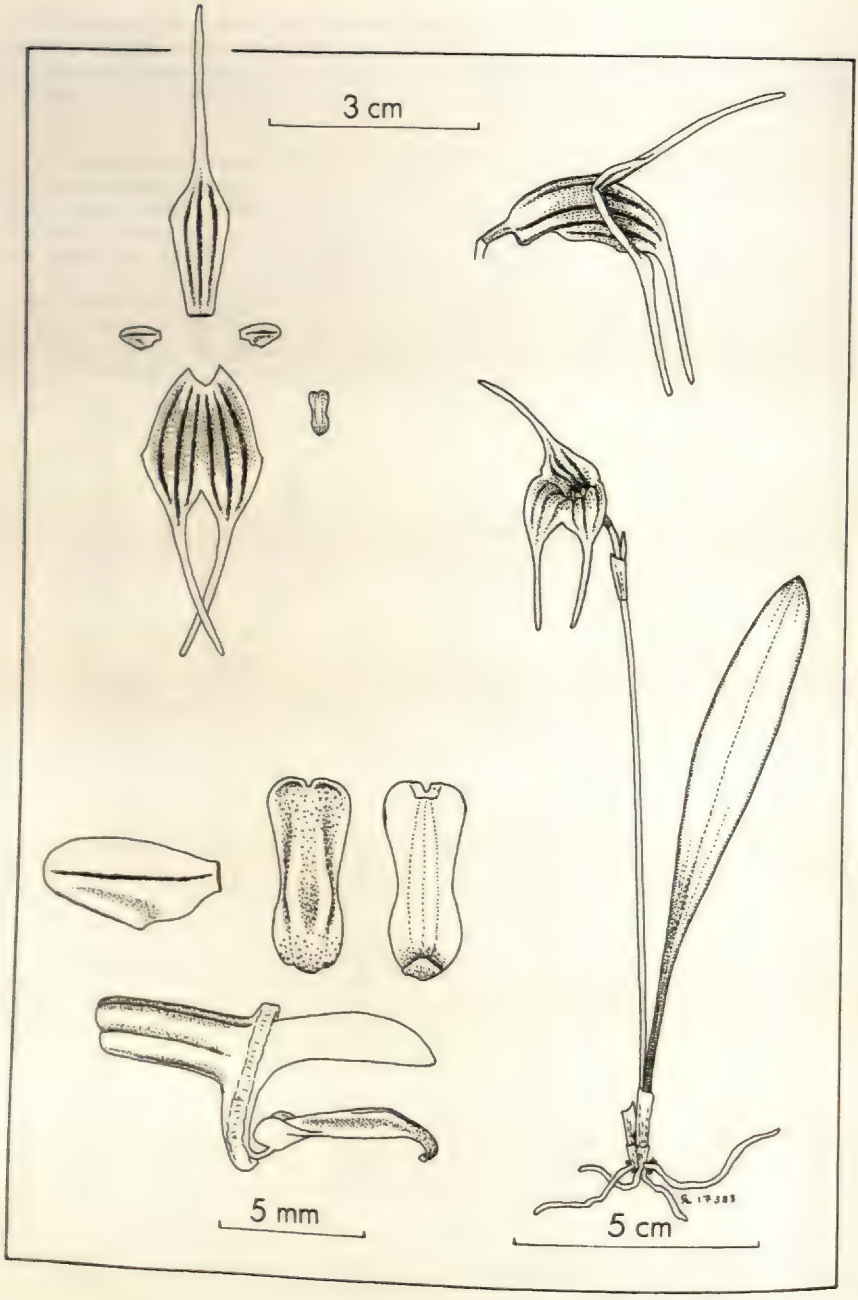


Plate 207. Masdevallia lankesteriana

Masdevallia marginella Rchb.f., Gard. Chron. n.s., 20: 38, 1883.

Ety.: From the Latin diminutive of *margin*, "a little margin," possibly in reference to the minutely toothed margin of the apex of the lip.

Syn.: *Masdevallia costaricensis* Rolfe, Gard. Chron. ser. 3, 8: 183, 1890.
Ety.: Named for Costa Rica, the country of origin of the plant.

Plant medium in size, epiphytic, caespitose; roots coarse. Ramicauls erect, stout, 1.5-2 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thickly coriaceousa, 5.5-10 cm long including a petiole 1.5-3 cm long, the blade elliptical, obtuse, 2-2.5 cm wide, the base cuneate into the channeled petiole. **Inflorescence** a 2-flowered, sublax raceme, the 2 flowers commonly open simultaneously, occasionally 1-flowered, produced by a slender, suberect peduncle 5.5-9 cm long, with a bract above the base, from low on the ramicaul; floral bracts thin, tubular, 9-11 mm long; pedicels 9-12 mm long, ca. 5 mm apart; ovary 5 mm long; **sepals** yellowish white, with yellow or green veins, glabrous, the dorsal sepal oblong, 15-17 mm long, 6 mm wide, connate to the lateral sepals for 12-14 mm to form a funnel-shaped, lightly compressed, sepaline tube, the short free portion broadly obtuse, contracted into a suberect, slender, orange tail 30-35 mm long, the lateral sepals connate 12-14 mm into an obovate, bifid lamina 20-23 mm long, 14-16 mm wide together, the free portions ovate, subacute, contracted into tails 23-27 mm long, similar to that of the dorsal sepal; **petals** white, more or less oblong, obtuse, 6 mm long, 3 mm wide, the labellar margin callous, obtusely angled in the lower third; **lip** white, faintly suffused with rose, oblong-pandurate, 7 mm long, 2.5-3 mm wide, constricted above the middle, the distal third yellow, obovate, subtruncate and retuse with denticulate margins, the base subcordate, the halves of the base shallowly concave, hinged beneath; **column** white, semiterete, 5.5 mm long, the foot 3 mm long with an incurved extension.

COSTA RICA: without locality or collector, imported by Messrs. Sander of St. Albans, England, ca. 1882 *F. Sander s.n.* (Holotype: W); without locality or collector, imported by Messrs. Sander of St. Albans, England, cultivated 1890 by *S. Courtauld s.n.* (holotype of *M. costaricensis*: K). **Cartago**: epiphytic in cloud forest near San Cristóbal, alt. 1800 m, June 1980, *L.D. Gómez 7271* (CR); same area, alt. 1800 m, 22 June 1981, *C. Luer, A. Luer & L.D. Gómez 6397* (SEL). **San José**: above Concepción, collected by R. Escobar, 1983, cultivated at Colombórquídeas, 20 Apr. 1988, *C. Luer 13264* (MO).

Although having been collected late in the nineteenth century near centers of population, *M. marginella* remained lost from cultivation until recently. Other species had been in the trade under that name (e.g. *M. verecunda*). *Masdevallia marginella* was first imported with plants of *M. reichenbachiana* from Costa Rica about 1882 by Messrs. Sander of St. Albans, England. A flowering specimen was forwarded to Reichenbach in Hamburg. Plants apparently from the same source were cultivated by S. Courtauld, Esq. of Bocking Place, Braintree, and in 1890, a flowering specimen was submitted to Rolfe at Kew. He described it again. Although Reichenbach's herbarium had been sealed since the preceding year according to his will, his clear description of *M. marginella* in 1883 existed in the *Gardeners' Chronicle*.

A painting of this species by the late Dr. Rafael Lucas Rodriguez led to the reintroduction of this species into cultivation when Dr. Luis Diego Gómez remembered where he had seen it. It grows intermixed with *M. calura, M. reichenbachiana*, and *M. rolfeana*. Although vegetatively similar, *M. marginella* is distinguished by the two yellowish, simultaneous flowers. The thickened labellar margin of the petals is dilated, and the apex of the lip is minutely denticulate.

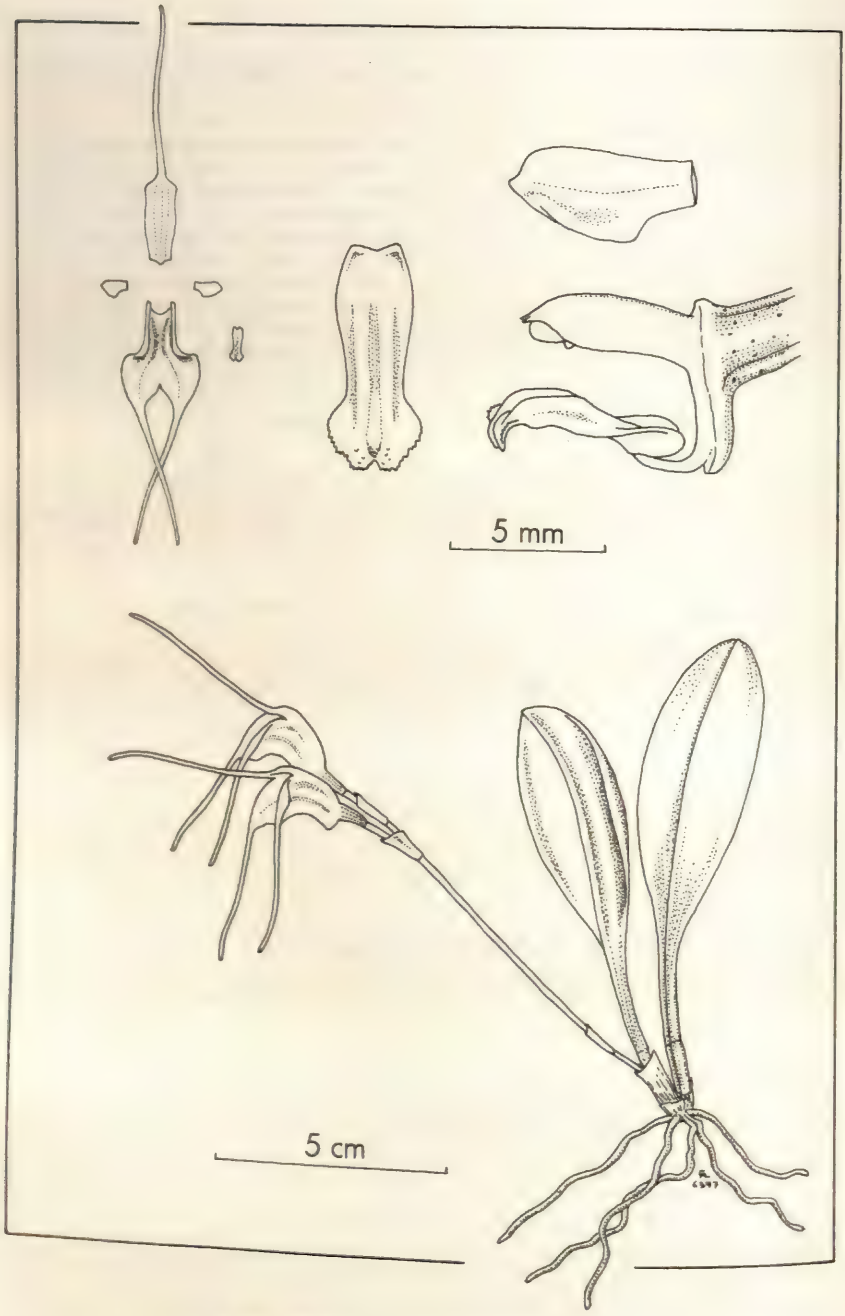


Plate 208. Masdevallia marginella

Masdevallia mejiana Garay, Orquideología 6: 17, 1970.

Ety: Named in honor of Alvaro Mejía of Medellín, Colombia, in whose orchid collection this species was discovered.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 1-2 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, petiolate, 7-12 cm long including the petiole 1.5-3.5 cm long, the blade elliptical, obtuse to rounded at the apex, 1.8-2.5 cm wide, gradually narrowed below into the petiole. **Inflorescence** a solitary flower, occasionally followed by a second, borne by a slender, erect to suberect peduncle 4.5-7 cm long, with a bract above the base, from low on the ramicaul; floral bract tubular, 6-8 mm long; pedicel 11-16 mm long; ovary greenish white, 5-8 mm long; **sepals** white, the dorsal sepal suffused with yellow along the sides, obovate, 16 mm long, 12 mm wide, connate to the lateral sepals for 10-12 mm to form a cylindrical, slightly arcuate, sepaline tube, the apex obtuse, contracted into an erect, thick, orange tail 3.5-5.5 cm long, 2 mm broad, the lateral sepals lightly suffused with pink, minutely dotted with purple near the middle, connate 16 mm into an obovate lamina, 20 mm long, 18 mm wide, with a short but distinct mentum below the column-foot, the apices obtuse, contracted into descending tails similar to that of the dorsal sepal; **petals** white, oblong, 7-8 mm long, 2.25 mm wide, the apex truncate, obscurely tridentate, the labellar margin with a low, longitudinal callus, dilated below the middle; **lip** white, oblong, 5.5-6 mm long, 2.5-3.25 mm wide, the apex broadly obtuse or rounded, revolute, the disc with a low, longitudinal, parallel pair of calli, the base truncate, hinged beneath; **column** white with purple margins, semiterete, 5.5-6 mm long, the foot 3 mm long, with an incurved extension.

COLOMBIA: **Antioquia**: without collection data, cultivated by A. Mejía, 1970, *Gilberto Escobar 426* (Holotype: AMES); Briceño, Quebrada Negra, alt. 500 m, 1975, *O.J. Arango 38* (JAUM); same collection cultivated by Arango at La Estrella, 1 Oct. 1977, *C. Luer 1878* (SEL); Briceño, Quebrada Negra, alt. 500 m, collected by E. Valencia, cultivated by R. Escobar, Medellín, 13 Apr. 1988, *C. Luer 13180* (MO); Yarumal, near El Cedro, alt. 850 m, collected by E. Valencia, cultivated by R. Escobar, Medellín, 11 Mar. 1989, *C. Luer 14119* (MO).

This species occurs at a relatively low altitude, less than 1000 meters above sea level, in the northern part of the Western Cordillera of Colombia. It is reported to grow in high branches of tall trees in considerable sunlight, flowering profusely during the dry season between December and February. In cultivation, plants flower intermittently through the year.

Masdevallia mejiana, a South American ally of the Central American species of section *Reichenbachianae*, is distinguished by the white flowers with the lateral sepals deeply connate into a broad synsepal and with broad, orange tails. A second flower often follows the first. The petals are callous on the labellar half without a protruding process. The lip is oblong with the truncate apex shortly recurved.

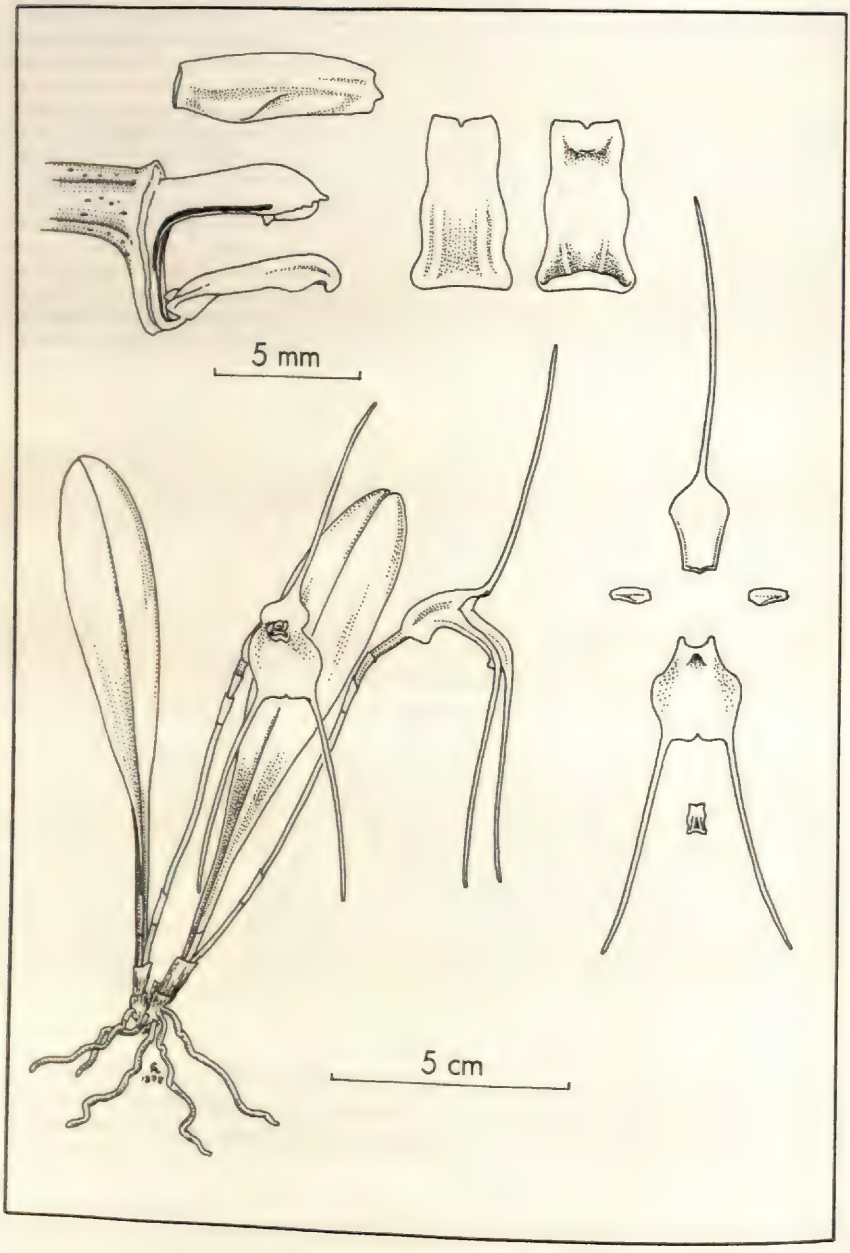


Plate 209. Masdevallia mejiana

Masdevallia polita Luer & Sijm, hybr. nov.

Ety.: From the Latin *politus*, "polished," referring to the shiny surface of the sepaline tube,

Species haec *M. enallaci* Königer affinis, sed sepalorum tubo bruneo nitido supra medium constricto differt.

Plant medium in size, in cultivation only, caespitose; roots slender. Ramicauls slender, erect, 1.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 8 cm long including the petiole 2 cm long, the blade narrowly elliptical, subacute, 1.5 cm wide, the base narrowly cuneate into the petiole. **Inflorescence** a solitary flower, followed by a second, borne by a slender, suberect peduncle 7 cm long, with a bract above the base, from low on the ramicaul; floral bracts 5-7 mm long; pedicel 12-18 mm long; ovary 4 mm long; **sepals** glabrous and shiny brown externally, microscopically cellular within, the blade of the dorsal sepal oblong, 21 mm long, 6-7 mm wide, connate to the lateral sepals for 19 mm into a cylindrical tube, constricted above the middle, the free portion triangular, broadly obtuse, contracted into a slender, yellow, forwardly directed tail 9 mm long, the lateral sepals connate 18 mm into an oblong, ventricose lamina 20 mm long, 13 mm wide expanded, the apices subacute, contracted into tails similar to that of the dorsal sepal; **petals** pale yellow, oblong, 7 mm long, 2.75 mm wide, the apex obtuse, obscurely bilobed, with a low, longitudinal callus along the labellar half terminating in a low, rounded callus at the base; **lip** yellow, dotted with brown, narrowly ovate, obtuse, 8 mm long, 3.75 mm wide, with the margins recurved above the middle, the disc with a pair of low, smooth, longitudinal calli above the middle, the base very shallowly concave, subtruncate, hinged beneath; **column** pale yellow, with purple margins, semiterete, 5 mm long, the foot thick, 2 mm long with a short, incurved extension.

Without collection data, cultivated at Orchideeënkwekerij, Venhuizen, the Netherlands, August 2000, by *A.P. Sijm 200329* (Holotype: MO), C. Luer illustr. 19387.

This plant has been in cultivation by A.P. Sijm in Venhuizen, the Netherlands, without collection data. It is similar to *M. enallax*, which he also cultivates without collection data. Most likely these two taxa are spontaneous hybrids of mixed parentage. One parent of each probably belongs to subsection *Saltatrices*, because of the elongated, sepaline tube, but the other parent is obscure. These taxa key out to section *Reichenbachianae*, because of the successively flowered raceme, petals without a protruding process, and an entire lip without marginal folds.

Masdevallia polita is distinguished from *M. enallax* by the glossy brown sepaline tube which is ventricose and constricted above the middle. The tube of the latter is broadly cylindrical and less ventricose. The sepaline tails of *M. polita* are directed forward from a non-dilated orifice, while the tails of the latter are recurved from a dilated orifice. The petals are similar, but the lips differ in minor degrees.

The plant is included in this work simply because it exists. Its recognition will assist persons who will eventually meet and deal with this taxon in the future.

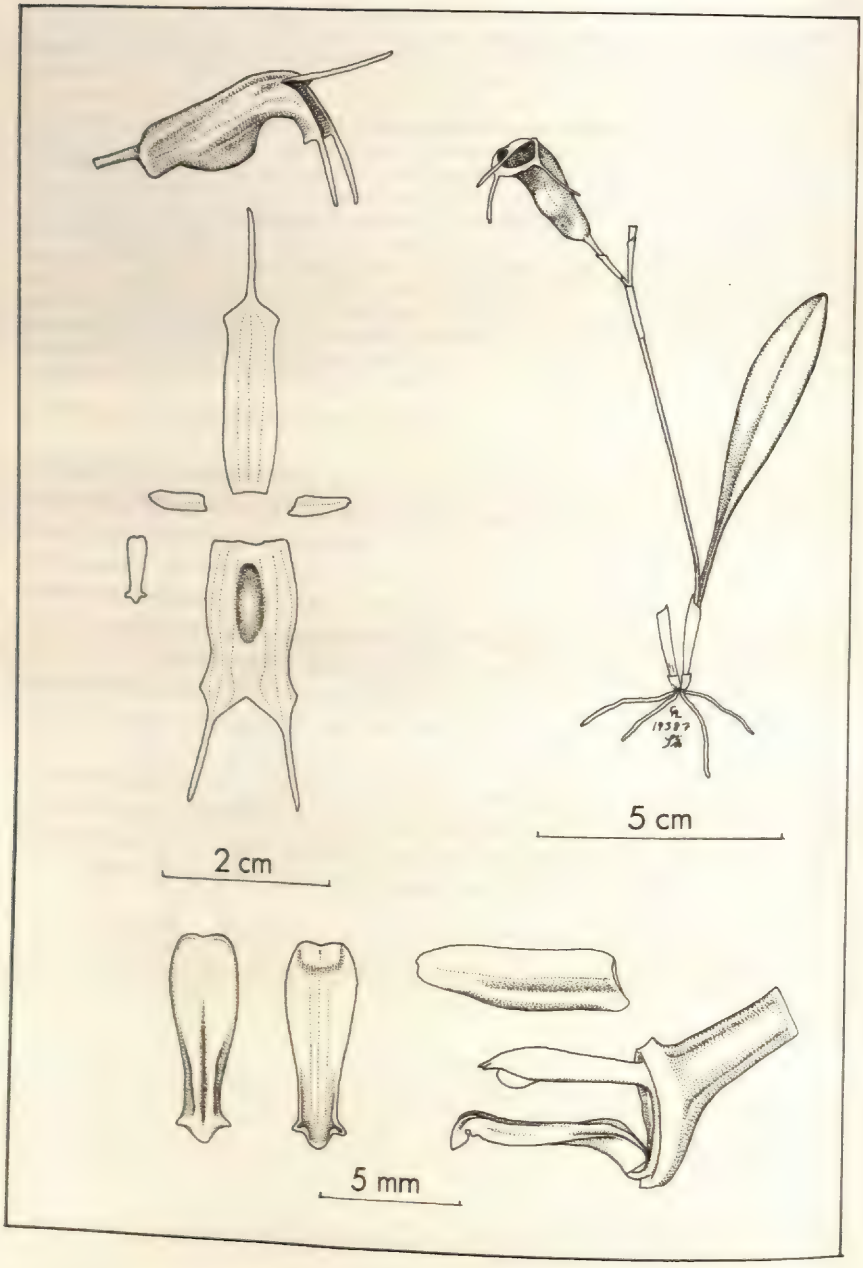


Plate 210. Masdevallia polita

Masdevallia reichenbachiana Endres ex Rchb.f., Gard. Chron. n.s., 4: 257, 1875.

Ety.: Named for Professor Heinrich Gustav Reichenbach (1823-1889), renowned orchidologist and professor of botany and director of the Botanic Gardens at Hamburg University.

Syn.: *Masdevallia normanii* hort., *sec.* Rchb.f., Gard. Chron. n.s., 16: 230, 1881.
Ety.: Named for the Rev. J.B. Norman in whose collection the species flowered.

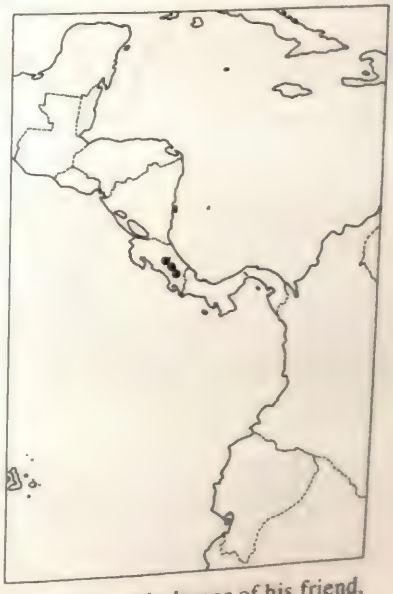
Syn.: *Masdevallia reichenbachiana* var. *aurantiaca* Rchb.f., Gard. Chron. n.s., 20: 360, 1883.
Ety.: From the Latin *aurantiacus*, "orange-colored," referring to the color-form.

Syn.: *Masdevallia funebris* Endres ex Kraenzl., Repert. Spec. Nov. Regni Veg. 17: 435, 1921.
Ety.: From the Latin *funebris*, "pertaining to a funeral," in allusion to the dark color.

Syn.: *Masdevallia reichenbachiana* var. *funebris* (Endres ex Kraenzl.) Kraenzl., Repert. Spec. Nov. Regni Veg. Beih. 34: 83, 1925.

Plant medium in size to large, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 1-2.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 8-12 cm long including a petiole 2-3 cm long, the blade elliptical-obovate, obtuse to rounded at the apex, 1.8-2.3 cm wide, gradually narrowed below into the petiole. **Inflorescence** a congested, successively few-flowered raceme 1-2 cm long, borne by a slender, erect to suberect peduncle, 10-14 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 12-18 mm long; pedicel 15-20 mm long; ovary 6-7 mm long; **sepals** pale green, variously suffused with purple, glabrous, the dorsal sepal suffused with orange within, oblong, 35 mm long, 10-13 mm wide, connate to the lateral sepals for 24 mm to form a funnel-shaped, sepaline tube, the free portion acute, recurved, contracted into a slender, recurved, green tail 3-4 cm long, the lateral sepals rose to yellow-white above the middle internally, white suffused with purple along the veins externally, 33 mm long, connate 30 mm into a convex, ovate, bifid lamina 24 mm wide expanded, with a narrow, longitudinal mentum, with the acute apices close, contracted into slender tails 2-3 cm long; **petals** white, elliptical, obtuse to obscurely bilobed at the apex, 6 mm long, 2.75 mm wide, the labellar half with a broad callus ending in an obtuse angle above the base; **lip** white, oblong, 6 mm long, 2.5 mm wide, the apex obtuse with a recurved tip, the disc longitudinally thickened, the base truncate, hinged beneath; **column** white, semiterete, 5 mm long, the foot 2 mm long with a short extension.

COSTA RICA: Without locality, 1875, *A. Endres II-257* (Holotype: W). **Cartago**: Tablazo, south of Cartago, *A. Endres 501 (645)* (holotype of *M. funebris*: W); collected by Endres via Veitch, cultivated in Whitchurch, Edgware, England, by the *Rev. Norman 75* (holotype of *M. normanii*: W); Candelaria near La Palma on Irazú, alt. 1800-2000 m, 24 Dec. 1881, *F.C. Lehmann 1048* (BM, G); Estrella de Cartago, Apr. 1923, *C.H. Lankester 968, 1000* (AMES); Estrella de Cartago, 1949, *C.H. Lankester s.n.* (BM); Tablazo, alt. 1500 m, 22 June 1978, *C. Todzia 308* (CR). **San José**: Finca Palmital along Panamerican highway, alt. 1800-2000 m, 14 Nov. 1979, *K.S. Walter 79416* (CR); epiphytic in cloud forest near San Cristóbal, alt. 1800 m, 22 June 1981, *C. Luer, A. Luer & L.D. Gómez 6398* (SEL). **Heredia**: Cerro Central de Zurquí, alt. 1600-1700 m, 27 Dec. 1929, *C.W. Dodge, J. Valerio et el. 6145* (AMES); Santa Maria, 15 May 1928, *H.E. Stork 2095* (AMES). Without collection data, cultivated by W. Königer in Munich, Germany, 24 Aug. 1994, *C. Luer 10429* (MO).



This handsome Costa Rican species was first discovered by Endres who sent living plants to Europe with the request that it be named in honor of his friend, Professor Reichenbach. Reichenbach obliged. Plants, presumably also originating from Endres via Messrs. Veitch in the collection of the Rev. J.B. Norman became known horticulturally as *M. normanii*. Endemic in central Costa Rica, this species is uncommon, sometimes occurring with *M. calura*, the infrequent *M. marginella*, and *M. rolfeana*.

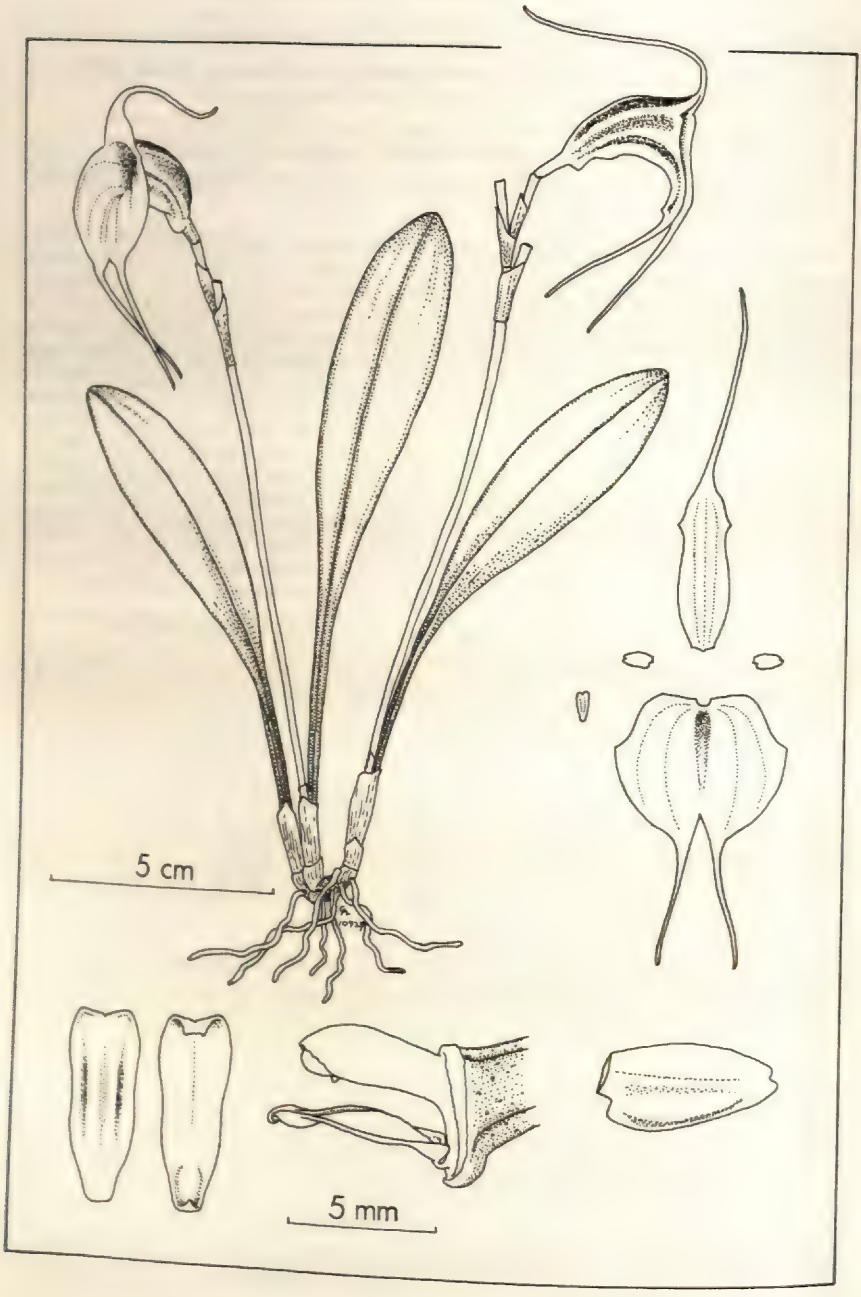


Plate 211. Masdevallia reichenbachiana

Vegetatively, *M. reichenbachiana* is indistinguishable from the above related compatriots. A large, showy flower is borne successively near the tips of the leaves. In varying intensity of colors, the sepals are usually whitish and delicately suffused with orange within and purple externally. An orange-colored form was recognized by Reichenbach as var. *aurantiaca*, and a dark-purple form was described by Kränzlin as var. *funebris*. The slightly arcuate, sepaline tube is conical. The free portion of the dorsal sepal and its tail are recurved. The mostly white synsepal is expanded beyond the tube with decurved tails. The petals are white and oblong with a smooth callus on the lower half. The lip is oblong and obtuse with a low, longitudinal, central thickening.

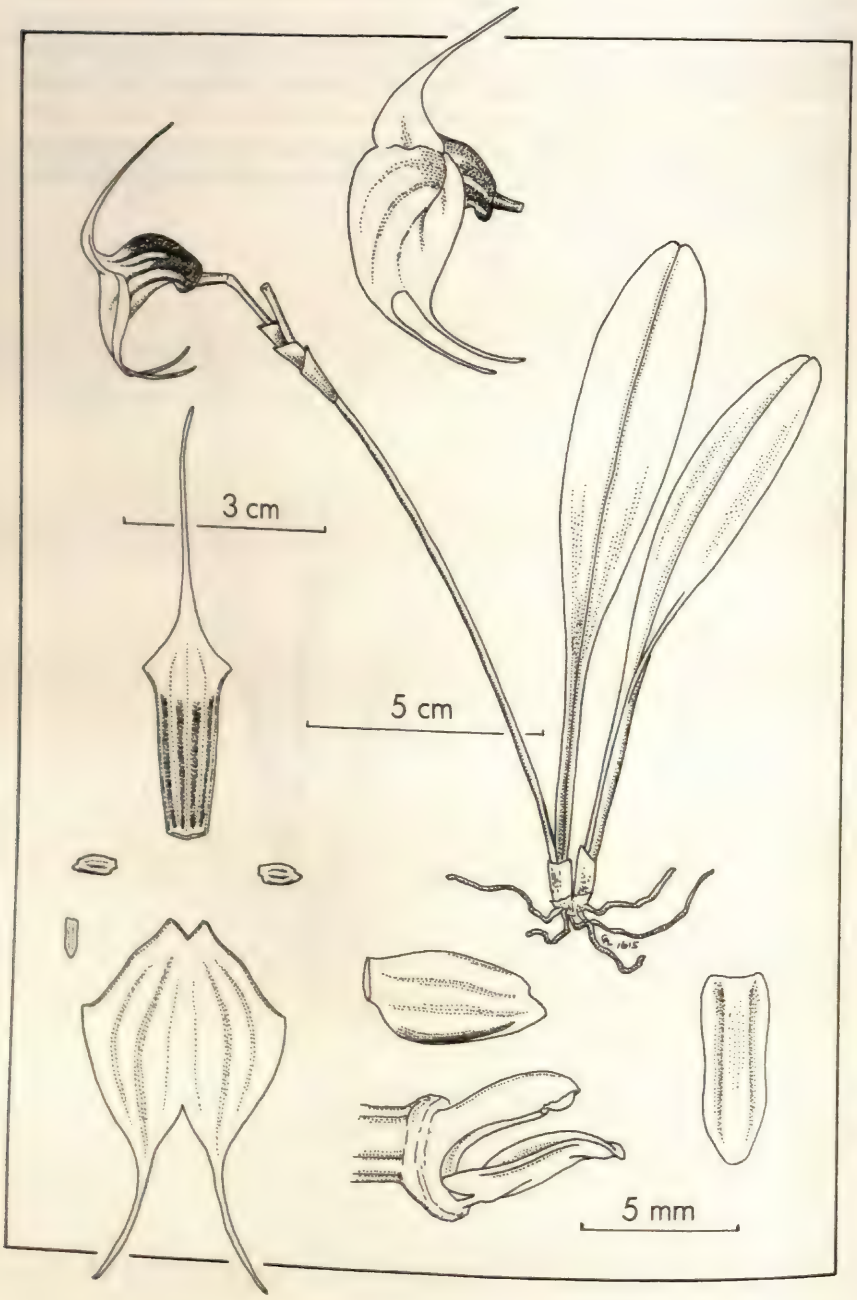


Plate 212. Masdevallia reichenbachiana

Masdevallia rolfeana Kraenzl., Gard. Chron. ser. 3, 9: 488, 1891.

Ety.: Dedicated to Robert Allen Rolfe, orchidologist at the Royal Botanic Gardens, Kew.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 2-2.5 cm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect to suberect, coriaceous, 5-10 cm long including a petiole 1-2 cm long, the blade narrowly elliptical-obovate, subacute to obtuse, 1.3-1.6 cm wide, gradually narrowed below into the indistinct petiole. **Inflorescence** a single flower, sometimes followed by a second flower, borne by a slender, erect to suberect peduncle, 3-4 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 12-13 mm long; pedicel 12-13 mm long; ovary 3-4 mm long; **sepals** dark reddish purple, yellowish toward the base, glabrous, the dorsal sepal obovate, 22 mm long, 11 mm wide, connate to the lateral sepals for 15 mm into a conical sepaline tube, the free portion decurved, triangular, obtuse, contracted into a slender, ascending, yellow tail 4 cm long, the lateral sepals obovate, oblique, 25 mm long, 10 mm wide, connate 15 mm, the apices subacute, contracted into tails 3 cm long, similar to that of the dorsal sepal; **petals** purple, thick, elliptical-oblong, 5.25 mm long, 2.5 mm wide, the labellar half with an indistinct, low, thick callus, the apex obtuse-truncate; **lip** cream, flecked with red-purple, oblong, lightly arcuate, 6 mm long, 2.25 mm wide, the apex obtuse with a low callus, minutely apiculate, the disc with a pair of low calli above the middle, shallowly sulcate between, the base subcordate, hinged beneath; **column** white, semiterete, 5 mm long, the foot 2 mm long with a short, incurved extension.

COSTA RICA: Without collection data, imported by Messrs. F. Sander & Co. at St. Albans, flowered July, 1890 (Holotype: K). **Alajuela**: Palmira, Alfaro Ruiz, alt. 2000 m, 27 May, 1938, *A. Smith H665* (AMES, NY). **Cartago**: alt. 6,000-7,000 ft., 1923, *C.H. Lankester 374* (AMES); Finca Gavilán, north of Volcán Irazú, 10 July 1960, *C.H. Lankester 15* (CR). **Guanacaste**: Monteverde, between Santa Elena and San Gerardo, alt. 1550 m, 31 Jan. 1989, *W. Haber 9063* (CR, MO). **Heredia**: south of Volcán Barba, Rancho Flores, alt. 2100 m, 5 July 1888, *H. Pittier 276* (CR); Vara Blanca, alt. 1600-1700 m, 22 July 1923, *W.R. Maxon & A.D. Harvey 8286* (AMES); Vara Blanca, July 1923, *O. Jimenez & W.R. Maxon 2068* (AMES); Yerba Buena, northeast of Isidro, alt. 2000 m, 22 Feb. 1926, *P.C. Standley & J. Valerio 50146* (AMES); Cerro de las Caricias, north of San Isidro, alt. 2000-2400 m, *P.C. Standley & J. Valerio 52215* (AMES); Vara Blanca, alt. 1745 m, 22 June 1963, *A. Jiménez 785* (CR, MO); road to Rio Patria, above San Rafael, alt. 1800 m, 25 July 1967, *R.W. Lent 1134* (AMES, CR, MO); Vara Blanca, alt. 1600-1700 m, 27 June 1979, *C. Todzia 626* (CR); Vara Blanca, alt. 2000 m, 19 June 1991, cultivated at Lankester Gardens, *D. Mora de Retana s.n.* (USJ). **Puntarenas**: Reserva Biológica Monteverde La Torre, alt. 1700 m, 6 Mar. 1990, *E. Bello 2121* (MO). **San José**: Zurquí, alt. 2000-2500 m, 13 Feb. 1926, *P.C. Standley & J. Valerio 48234* (AMES); Río Pará Blanca on provincial border with Heredia, 10 June 1974, *J. & K. Utley 937* (MO); Parque Nacional Braulio Carrillo, Vásquez de Coronado, Zurquí station, alt. 1700 m, 29 Oct. 1990, *S. Ingram & K. Ferrell 647* (CR, MO, SEL). Without locality, June 1920, *C.H. Lankester 338* (K).

This species was imported by Messrs. F. Sander & Co. from Costa Rica, but no collection data are known. A flowering plant was exhibited at a meeting of the Royal Horticultural Society in 1891, and named in honor of Robert Allen Rolfe, orchidologist at the Royal Botanic Gardens, Kew. It has proved to be widely distributed and relatively frequent in much of Costa Rica.

Although vegetatively similar to most of the other medium-sized species of the genus, *M. rolfeana* is distinguished by the peduncle shorter than the leaf, and occasionally producing a second flower. The deep purple flower is more or less compressed and conical in shape with an inconspicuous, short mentum. The free portion of the dorsal sepal is commonly deflexed with the slender tail then slightly rising. The purple petals are elliptical and obtuse; the oblong, obtuse lip is shallowly sulcate with a low, apical callus. *Masdevallia odontochila* is a synonym of *P. cupularis*, not *M. rolfeana* as stated by Kränzlin in his monograph of the genus.

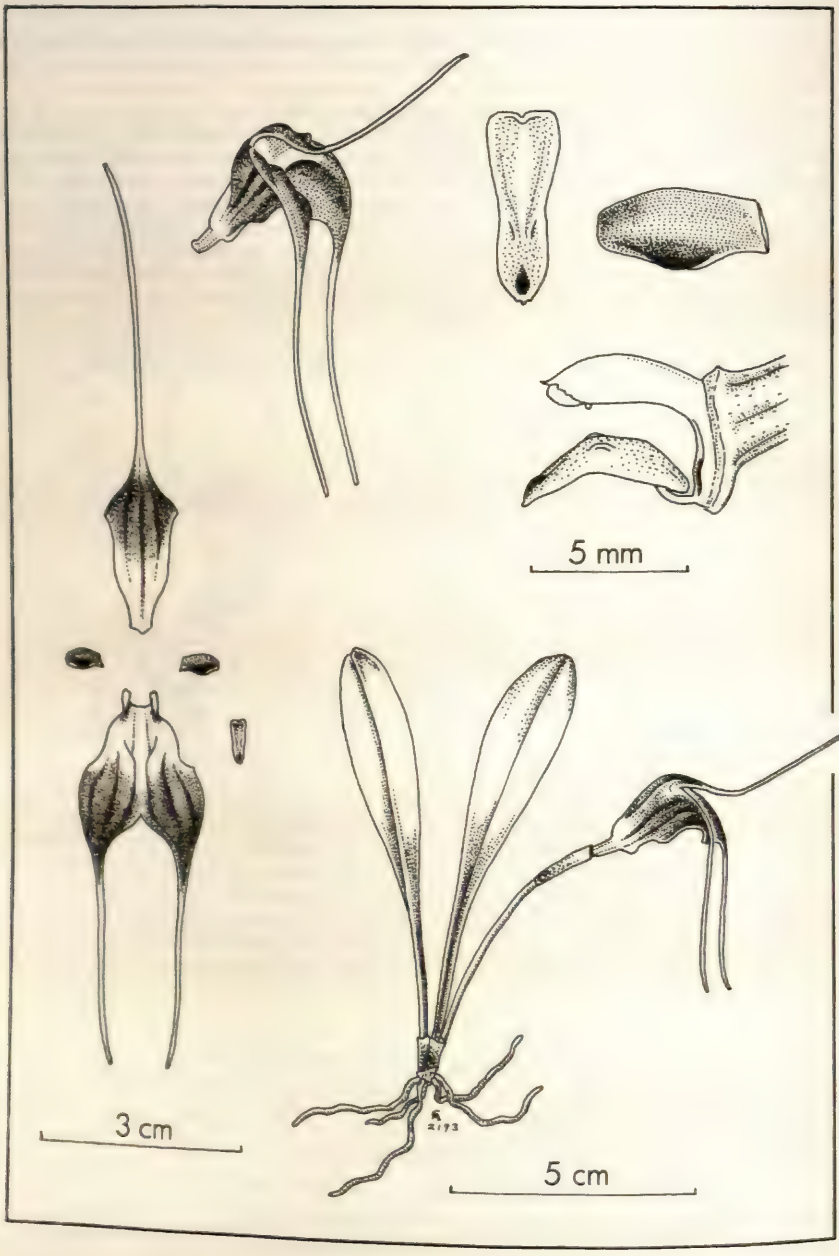


Plate 213. Masdevallia rolfeana

Masdevallia schroederiana Sander ex Veitch, Gard. Chron. ser. 3, 8: 51, 1890.

Ety.: Named by Messrs. Sander & Co. in honor of Baron Schröder who cultivated this species.

Plant medium in size to large, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 1.5-2.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 7-12 cm long including a petiole 2-4 cm long, the blade elliptical-obovate, obtuse to rounded at the apex, 1.3-2 cm wide, gradually narrowed below into the petiole. **Inflorescence** a congested, successively few-flowered raceme 1-2 cm long, borne by a slender, erect to suberect peduncle, 8-10 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 6-7 mm long; pedicel 13-15 mm long; ovary 9-10 mm long; **sepals** white or greenish white, variously suffused with purple, glabrous, the dorsal sepal suffused with orange within, obovate, 22 mm long, 15 mm wide, connate to the lateral sepals for 15 mm to form a gaping, campanulate, sepaline tube, the free portion transversely ovate, obtuse, contracted into a slender, erect to recurved, white tail 6-8 cm long, the lateral sepals white, suffused with purple medially, 35 mm long, connate 25 mm into a convex, ovate, bifid lamina 33 mm wide expanded, with a narrow, longitudinal mentum, each sepal concave externally, convex within, with the acute apices close, contracted into slender tails 5-6 cm long; **petals** rose, elliptical, obtuse to obscurely bilobed at the apex, 6.5 mm long, 2.5 mm wide, the labellar half with a low callus dilated in the middle third; **lip** white, oblong-subpandurate, 5.5 mm long, 2 mm wide, the apex obtuse, microscopically erose, the disc shallowly channeled between a pair of low, longitudinal calli, the base subtruncate, hinged beneath; **column** rose-white, semiterete, 5 mm long, the foot 2 mm long with a short, incurved extension.

"PERU:" Without collection data, imported in 1884 by Messrs. Sander & Co., St. Albans, England, *Hübsch s.n.* (Holotype: W).
COSTA RICA: **San José**: crest of the Cordillera de Talamanca, south of San Cristobal del Norte, alt. 1850-1900 m, ca. 1977, imported by R. Jenny, Bern, Switzerland, cultivated by W. Königer in Munich, Germany, *C. Horich s.n.* (SEL, Herb. H. Königer). Without collection data, cultivated by Don Richardson at Greentree, Manhasset, NY, 30 Apr. 1979, *C. Luer 4060* (SEL); without locallty, cultivated by M. & O. Robledo at La Ceja, 19 Mar. 1989, *C. Luer 14280* (MO).

This species was imported by Sander & Co. of St. Albans, England, from their collector Hübsch in 1884, but with the mistaken origin of Peru. Reichenbach declined to describe it, but it was published the year after his death in a report by the Orchid Committee of the Royal Horticultural Society, chaired by H.J. Veitch. Only in the latter half of the twentieth century were plants discovered growing in Costa Rica.

Masdevallia schroederiana is closely related to the other species of the section, but it is the most showy. It is distinguished by the white flowers suffused with bright purple and orange, and longer, white tails. The convexities of the synsepal are clearly visible within the orifice of the tube, and beyond the tube the synsepal is broadly expanded before the bifurcation. The petals and lip are very similar to the others.

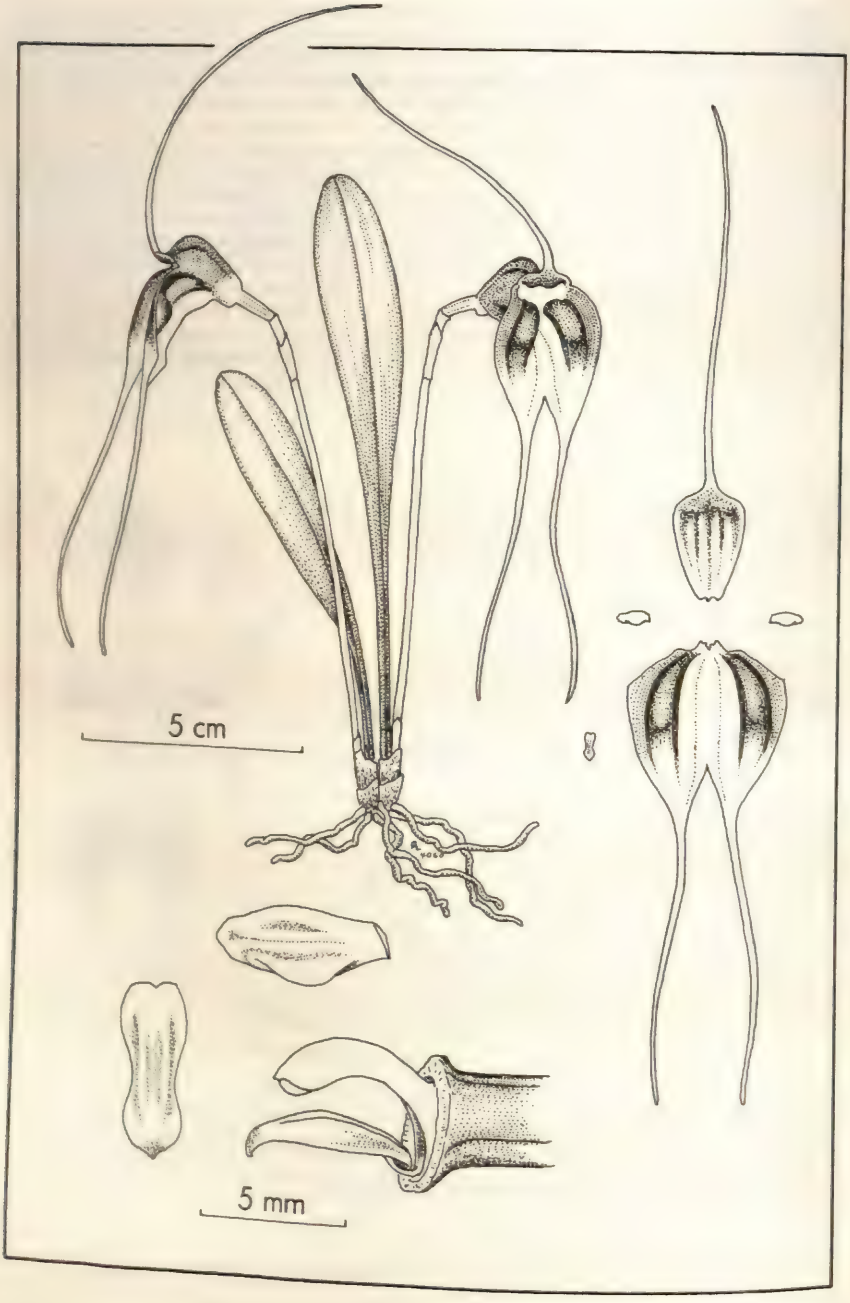


Plate 214. Masdevallia schroederiana

Masdevallia walteri Luer, Selbyana 5: 151, 1979.

Ety.: Named in honor of Dr. Kerry Walter who discovered this species.

Plant medium in size, epiphytic, caespitose; roots coarse. Ramicauls erect, stout, 2-3.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect to suberect, thickly coriaceous, shiny dark green, 7-13 cm long including a petiole 2-4 cm long, the blade elliptical, subacute to obtuse, 1.5-2.5 cm wide, cuneate below into the sulcate petiole. **Inflorescence** a solitary, yellow-orange flower, commonly forming a capsule, borne by a slender, suberect peduncle 6-9.5 cm long, with a bract below the middle, from low on the ramicaul; floral bract tubular, 7-9 mm long; pedicel 14-18 mm long; ovary 5 mm long, lengthening in older flowers; **sepals** yellow-orange, glabrous, the dorsal sepal oblong, 13 mm long, 5 mm wide, connate to the lateral sepals for 7 mm to form a curved, sepaline tube, the triangular free portion acute, contracted into a slender, orange tail ca. 17 mm long, the lateral sepals 12 mm long, connate 8 mm to form an arcuate, oblong, bifid lamina 9 mm wide, the acute apices contracted into tails ca. 14 mm long, similar to that of the dorsal sepal; **petals** white, oblong, 5 mm long, 2 mm wide, the obtuse apex bluntly short-apiculate, the labellar half slightly dilated below the middle and thicker than the opposite half; **lip** yellow, oblong-ovate, obtuse, 4.75 mm long, 2 mm wide, with marginal folds above the middle, the disc with a high, grooved callus from the subtruncate base to above the middle, hinged beneath; **column** white, stout, semiterete 5 mm long, the foot 2 mm long, ending in an incurved extension.

COSTA RICA: **San José**: epiphytic in wet cloud forest between Cartago and División, alt. 2850 m, 21 July 1979, *K.S. Walter 79199* (Holotype: SEL; Isotype: CR); east of La Georgina, alt. 2800 m, 20 Sept. 1979, *C. Luer, J. Luer & K. S. Walter 4242* (SEL); Canton Pérez Zeledón, alt. 2700 m, May 1993, *I. Mack 14* (USJ); Villa Mills, Finca La Suerte, 22 Apr. 1992, *Dora Mora de Retana s.n.*, (USJ); Cordillera de Talamanca, Villa Mills, alt. 3000 m, May 1993, *Dora Mora de Retana s.n.* (USJ).

This species was first discovered by Dr. Kerry Walter who at that time was a research fellow in the Department of Botany of the National Museum in San José, Costa Rica. While looking in the cool wet forests of Cerro del Muerte for a plant later to be described as *Masdevallia rafaeliana*, he discovered this species growing with it along with several species of *Lepanthes*.

Although vegetatively similar to the other medium-sized species of the genus, *M. walteri* is recognized by the slender peduncle bearing a small, yellowish orange flower that is commonly self-fertilized. The slender sepaline tails are a little longer than the blades. The petals are oblong with a thickening along the labellar margin. The lip is narrowly ovate with a pair of marginal folds above the middle.

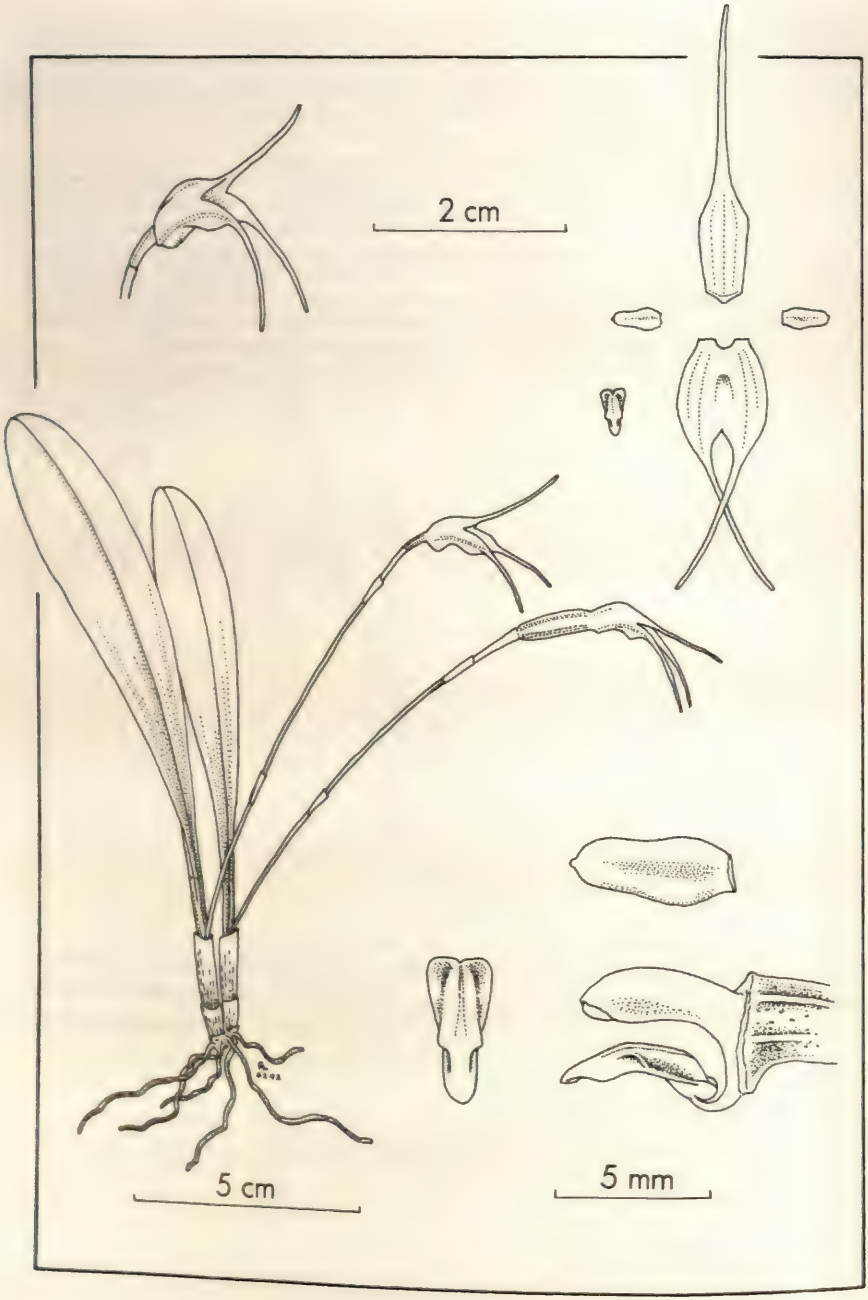


Plate 215. Masdevallia walteri

MASDEVALLIA SUBGENUS PYGMAEIA

Subgenus *Masdevallia* sections *Amaluzae* and *Aphanes*, and subgenus *Amanda* section *Pygmaeae* (Luer, 1986) are united here to form subgenus *Pygmaeia*. Treating these as three sections in a single, loosely related, more easily recognized taxon, seems preferable to maintaining several to many small subgenera. Although all the species included in this proposed subgenus probably are not closely related, they are brought together by their small, caespitose habit. The few species of the well-defined section *Triotosiphon* as well as small members of other well-defined subgenera and sections are excluded.

The first species to be described and referable to this conglomerate subgenus was collected in Peru by Poeppig and published by Poeppig and Endlicher as *Specklinia plantaginea* in 1835. Lindley transferred it to *Pleurothallis* in 1842, and Cogniaux transferred it to *Masdevallia* in 1896. Subsequent authors remained uncertain as to which of the latter two genera the species really belonged, because the habit is similar to that of small species of either *Masdevallia* or *Pleurothallis*. Reichenbach described the next two species attributable to this subgenus, *M. erinacea* and *M. anachaeta*, in 1877 and 1878 respectively, the only other species to be recognized in the nineteenth century. Although *M. pygmaea* had been collected by both Endres and Lehmann in the nineteenth century, it was not published until 1925 by Kränzlin. Most of the remaining species have been described in the twentieth century. All 34 species occur in the neotropics from Costa Rica through the Andes.

SUBGENUS *PYGMAEIA*

Masdevallia subgenus **Pygmaeia** Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 77: 10, 2000.

Type: *Masdevallia pygmaea* Kraenzl.
Ety.: From the Greek *pygmaeus*, "like a pygmy" referring to the minute habit.
Bas.: *Masdevallia* sect. *Pygmaeae* Luer.

Syn.: *Masdevallia* sect. *Amaluzae* Luer.
Type: *Masdevallia amaluzae* Luer & Malo.
Ety.: Named for the community of Amaluza in the province of Azuay, Ecuador, near the locality where the species was discovered.

Syn.: *Masdevallia* sect. *Aphanes* Luer.
Type: *Masdevallia aphanes* Königer.
Ety.: From the Greek *aphanes*, "obscure," referring to the diminutive habit.

Plants small to very small, epiphytic, caespitose; roots slender. Ramicauls erect, abbreviated. **Leaf** coriaceous, erect, narrowly elliptical-obovate to narrowly linear. **Inflorescence** a solitary flower, or followed by another, sometimes in an elongating raceme, borne by a slender, erect to horizontal peduncle laterally from the ramicaul below the abscission layer; ovary variously ornamented from verrucose to long-papillose, spiculate, crested, or lacerate-winged; **sepals** often with the ovarian processes extending onto the basal portions, the sepals more less fleshy, connate to form a short, cylindrical tube, with the apices tailless or with short, thickened tails; **petals** callous with or without a protruding process; **lip** oblong, obtuse, with a pair of carinae from below the middle to or near the apex, but not dividing the lip into two distinct portions; **column** semiterete, the anther and stigma ventral, the foot nearly as long as the gynostemium with a short extension.

The subgenus is characterized by a small, caespitose habit. The flowers are produced singly or successively, and laterally from the ramicaul. The ovaries are variable, from smooth to costate or ribbed, verrucose, crested to spiculate, with the processes often extending onto the sepals. The apices of the sepals are with or without tails. The petals are callous with or without a protruding process. The lip is oblong with variations of a pair of longitudinal calli. Four sections are defined.

PYGMAEIA SECTION AMALUZAE

Masdevallia subgen. **Pygmaeia** sect. **Amaluzae** Luer.
Bas.: *Masdevallia* sect. *Amaluzae* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 16: 18, 1986.
Type: *Masdevallia amaluzae* Luer & Malo.

Section *Amaluzae* is distinguished by a small to very small, caespitose habit with a successively flowered raceme borne by a slender, ascending, horizontal to descending, terete peduncle. The ovaries are smooth with low ribs that are sometimes undulate. The sepals are contracted into slender tails. The petals are callous mostly without a protruding process. The lips are more or less oblong with variations of a pair of longitudinal calli.

PYGMAEIA SECTION APHANES

Masdevallia subgen. **Pygmaeia** sect. **Aphanes** Luer.
Bas.: *Masdevallia* sect. *Aphanes* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 16: 18, 1986.
Type: *Masdevallia aphanes* Königer.
Syn.: subgen. *Masdevallia* subsect. *Pterygiophorae* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 77: 10, 2000.
Type: *Pleurothallis pterygiophora* Luer & Escobar.

Section *Aphanes* is distinguished by a small to very small, caespitose habit with a successively flowered raceme borne by a slender, ascending, horizontal to descending, terete peduncle. The ovaries are costate, crested or verrucose. The apices of the lateral sepals are acute to obtuse without contracting a tail, but in a few species the apices are thickened into short tails. The petals are callous on the labellar margin. The lips are more or less oblong with the disc featureless or sulcate between calli.

PYGMAEIA SECTION PYGMAEAE

Masdevallia subgenus **Pygmaeia** section **Pygmaeae** Luer.
Bas.: *Masdevallia* sect. *Pygmaeae* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 16: 15, 1986.
Type: *Masdevallia pygmaea* Kraenzl.

This section is distinguished by a small to very small, caespitose habit and an inflorescence borne by a slender, terete peduncle. The flower is often followed by a second. The ovaries are papillose or spiculate. The sepals are caudate. The petals are thickened on the labellar margin with an angle at the base. The lips are more or less oblong with a pair of longitudinal calli.

PYGMAEIA SECTION ZAHLBRUCKNERAE

Masdevallia subgen. **Pygmaeia** sect. **Zahlbrucknerae** Luer, stat. nov.
Bas.: *Masdevallia* subsect. *Zahlbrucknerae* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 77: 10, 2000.
Type: *Masdevallia zahlbruckneri* Kraenzl.

Section *Zahlbrucknerae* seems sufficiently distinct from to section *Amaluzae* to be retained as a subsection. It is distinguished by a small to medium-sized, caespitose habit with a successively flowered raceme borne by an ascending, horizontal to descending, terete peduncle. The ovaries are smooth or slightly costate. The sepals are contracted into slender tails. The petals are callous with a distinct, retrorse process at the base. The lips are more or less oblong with variations of a pair of longitudinal calli.

BINOMIALS IN *MASDEVALLIA* ATTRIBUTED TO SUBGENUS *PYGMAEIA*

M. amaluzae Luer & Malo ..... Plate 216.
M. anachaeta Rchb.f. ..... Plates 217, 218.
M. aphanes Königer ..... Plate 219.
M. audax Königer ..... Plate 220.
M. aurorae Luer & M.W.Chase ..... Plate 221.
M. berthae Luer & Andreetta ..... Plate 222.
M. capillaris Luer = **M. plantaginea**
M. carmenensis Luer & Malo ..... Plate 223.
M. chimboënsis Kraenzl. ..... Plate 224.
M. collantesii D.E.Benn. & Christenson ..... Plate 225.
M. echinocarpa Schltr. = **M. erinacea**
M. erinacea Rchb.f. ..... Plates 226, 227.
M. exigua Ames & C.Schweinf. = **M. pygmaea**
M. expers Luer & Andreetta ..... Plate 228.
M. glossacles Luer = **M. mentosa**
M. henniae Luer & Dalström ..... Plate 229.
M. hoeijeri Luer & Hirt ..... Plate 230.
M. horrida Teuscher & Garay = **M. erinacea**
M. humilis Luer = **M. zahlbruckneri**
M. indecora Luer & Escobar ..... Plate 231.
M. manchinazae Luer & Andreetta ..... Plate 232.
M. mataxa Königer & H.Mend. ..... Plate 233.
M. mentosa Luer ..... Plates 234, 235.
M. merinoi Luer & Portilla ..... Plate 236.
M. morenoi Luer = **M. schizopetala**
M. muriculata Kraenzl. = **M. pygmaea**
M. naranjapatae Luer ..... Plate 237.
M. nutans Lehm. & Kraenzl. = **M. anachaeta**
M. paquishae Luer & Hirtz ..... Plate 238.
M. patula Luer & Malo ..... Plate 239.
M. plantaginea (Poepp. & Endl.) Cogn. ..... Plate 240.
M. pterygiophora Luer & Escobar ..... Plate 241.
M. pygmaea Kraenzl. ..... Plate 242.
M. pyknosepala Luer & Cloes ..... Plate 243.
M. sanchezii Luer & Andreetta ..... Plate 244.
M. scalpellifera Luer ..... Plate 245.
M. schizopetala Kraenzl. ..... Plates 246, 247.
M. schizostigma Luer ..... Plate 248.
M. scopaea Luer & Vásquez ..... Plate 249.
M. setipes Schltr. ..... Plate 250.
M. trifurcata Luer ..... Plate 251.
M. trivenia Königer = **M. paquishae**
M. vieirana Luer & Escobar ..... Plate 252.
M. vulcanica Lehm. & Kraenzl. = **M. anachaeta**
M. zahlbruckneri Kraenzl. ..... Plates 253, 254, 255, 256.

KEY TO THE SECTIONS

1 Ovaries smooth, ribbed or low-costate; sepals caudate.....2
1' Ovaries carinate, crested, verrucose, papillose or spiculate; sepals with or without tails 3

2 Petals usually without a marginal process.....(sect. *Amaluzae*) 4
2' Petals with a retrorse, basal process.....(sect. *Zahlbrucknerae*) 15

3 Ovaries carinate, crested or verrucose; sepals tailless, rarely contracted into a short, thick tail; petals without a retrorse, basal process.....(sect. *Aphanes*) 18
3' Ovaries spiculate to long-papillose; sepals with terete or clavate tails; petals with a retrorse, basal process.....(sect. *Pygmaeae*) 32

KEY TO THE SPECIES OF SECTION *AMALUZAE*

4 Lateral sepals with tails shorter than the blades.....*M. chimboënsis*
4' Lateral sepals with tails as long as or longer than the blades.....5

5 Synsepal with incurved margins beyond the tube, sulcate within.....*M. mataxa*
5' Synsepal not as above 6

6 Lateral sepals connate 20 mm or more 7
6 Lateral sepals connate 15 mm or less 8

7 Dorsal sepal connate above the middle to the lateral sepal for more than 10 mm.... ..... *M. carmenensis*
7' Dorsal sepal connate below the middle to the lateral sepals for less than 9 mm..... ..... *M. patula*

8 Lateral sepals with filamentous, approximate tails longer than the synsepal.....9
8' Lateral sepals with tails about as long as the blades.....10

9 Lateral sepals connate above the middle, ca. 7 mm broad.....*M. manchinazae*
9' Lateral sepals connate near the middle, ca. 14 mm broad.....*M. merinoi*

10 Petals and lip acute to acuminate.....11
10' Petals and lip subacute to obtuse.....13

11 Lip truncate at the base, adnate to the base of the column.....*M. schizostigma*
11' Lip attached to an extension from the column-foot.....12

12 Petals subulate; lip acute .....*M. sanchezii*
12' Petals acute; lip acuminate .....*M. audax*

13 Lateral sepals connate to near the middle, with the tails thick; lip thick, round at the apex .....*M. aurorae*
13' Lateral sepals connate above the middle with slender tails; lip thin, subacute...14

14 Lateral sepals yellow, lightly veined in brown.....*M. amaluzae*
14' Lateral sepals white, prominently veined in purple.....*M. paquishae*

KEY TO THE SPECIES OF SECTION *ZAHLBRUCKNERZAE*

15 Lateral sepals connate into an ovate synsepal with acute apices.....16
15' Lateral sepals connate into a narrowly acuminate, bifid synsepal.....17

16 Lateral sepals connate below the middle.....*M. schizopetala*
16' Lateral sepals connate above the middle.....*M. zahlbruckneri*

17 Sepals intensely speckled with purple.....*M. naranjapatae*
17' Sepals white.....*M. vieirana*

KEY TO THE SPECIES OF SECTION *APHANES*

18 Lateral sepals not contracted into tails.....19
18' Lateral sepals contracted into short, thick tails.....30

19 Lateral sepals oblong, obtuse.....20
19' Lateral sepals triangular, acute to subacute.....22

20 Petals apiculate; lip shallowly sulcate between longitudinal calli.....*M, pyknosepala*
20' Petals obtuse; lip broadly sulcate between a pair of carinae below the middle...21

21 Peduncle longer than the leaf; sepals less than 8 mm long, heavily spotted with purple.....*M. expers*
21' Peduncle shorter than the leaf; sepals more than 10 mm long, suffused with purple.....*M. collantesii*

22 Lip unguiculate.....23
22' Lip not unguiculate.....24

23 Lip with the claw formed by revolute sides.....*M. aphanes*
23' Lip with the claw formed by lateral compression.....*M. trifurcata*

24 Lip shallowly sulcate between a pair of long, low, longitudinal calli.....25
24' Lip not shallowly sulcate between a pair of long, low, longitudinal calli.....26

25 Raceme distantly flowered; petals with a broadly rounded, marginal callus.....*M. plantaginea*
25' Raceme congested; petals with an obtuse, retrorse callus above the base.....*M. scopaea*

26 Lip with a pair of calli near or above the middle.....27
26' Lip without calli.....28

27 Lip with a longitudinal, midline carina.....*M. scalpellifera*
27' Lip without a longitudinal, midline carina.....*M. indecora*

28 Lip with acute, marginal angles near the middle.....*M. berthae*
28' Lip without marginal angles.....29

29 Lip diffusely papillose.....*M. henniae*
29' Lip not papillose.....*M. mentosa*

30 Sepals with the apices thick with indistinct tails.....*M. pterygiophora*
30' Sepals with short, thick, terete tails.....31

31 Petals acute, unguiculate.....*M. setipes*
31' Petals obtuse, subtruncate, not unguiculate.....*M. hoeijeri*

KEY TO THE SPECIES OF SECTION *PYGMAEAE*

32 Sepals with carinae spiculate throughout.....*M. erinacea*
32' Sepals with carinae spiculate basally.....33

33 Petals acute; ovary spiculate.....*M. anachaeta*
33' Petals irregularly truncate; ovary long-papillose.....*M. pygmaea*

Masdevallia amaluzae Luer & Malo, Phytologia 39: 185, 1978.

Ety.: Named for the region near Amaluza in the province of Azuay, Ecuador, where the species was first discovered.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, suberect, 8-10 mm long, enclosed by 2-3 thin, loose, tubular sheaths. **Leaf** erect to suberect, coriaceous, 3.5-5.5 cm long including the petiole 1-2 cm long, the blade elliptical, acute, 0.9-1.1 cm wide, cuneate below into the slender petiole. **Inflorescence** a few-flowered, congested raceme of successive flowers, borne by a more or less horizontal, slender peduncle 4-5 cm long, with a bract below the middle, from low on the ramicaul; floral bract tubular, 4 mm long; pedicel 6 mm long; ovary 3-4 mm long, with low, lightly undulating ribs; **sepals** yellow, with veins more or less prominent externally, cellular-glandular within, the dorsal sepal obovate, 15 mm long, 5 mm wide, with 3 brown veins, connate to the lateral sepals for 5 mm into a short, cylindrical tube, the free portion narrowly triangular, gradually narrowed into a slender, brown tail, ca. 20 mm long, the lateral sepals 20 mm long, connate 12 mm into an oblong, bifurcated lamina 8 mm wide, the free portions ovate-triangular, the acute apices contracted into slender, brown tails ca. 17 mm long; **petals** translucent white with a purple midvein, subfalcate-oblong, 3.5 mm long, 1 mm wide, the apex acute, the base oblique and unguiculate below a swollen, broadly obtuse angle in the lower third of the labellar margin; **lip** white with 3 red veins down the center, oblong, 5 mm long, 1.25 mm wide, the apex subacute, the disc with a low, longitudinal pair of slightly irregular calli, the base thickened, cordate, with elevated, rounded margins, hinged beneath; **column** green, semiterete, 3 mm long, the foot 2 mm long with an incurved extension.

ECUADOR: **Azuay**: epiphytic near Amaluza, alt. 2000 m, May 1973, collected by B. Malo, cultivated at Tarqui near Cuenca, 8 July 1977, *C. Luer 1655* (SEL; clonotype: K). **Zamora-Chinchipe**: epiphytic in cloud forest south of Yangana, alt. 2450 m, 17 May 1984, *C. Luer, S. Dalström, T. Höijer, J. Kuijt & D. D'Alessandro 9587* (MO); same area, alt. 2450 m, 23 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10938* (MO).

This species occurs infrequently in the wet forests of southern Ecuador. It is characterized by the small, yellow flowers that are large for the size of the plant. The flowers are borne in a successively few-flowered, horizontal raceme. The dorsal sepal is prominently three-striped. The free portion of the synsepal, somewhat longer than the sepaline tube, protrudes before dividing into the caudate apices. It is lightly marked with brown. The petals are narrowly acute at the apex and unguiculate at the base. The lip is narrowly oblong with three prominent veins.

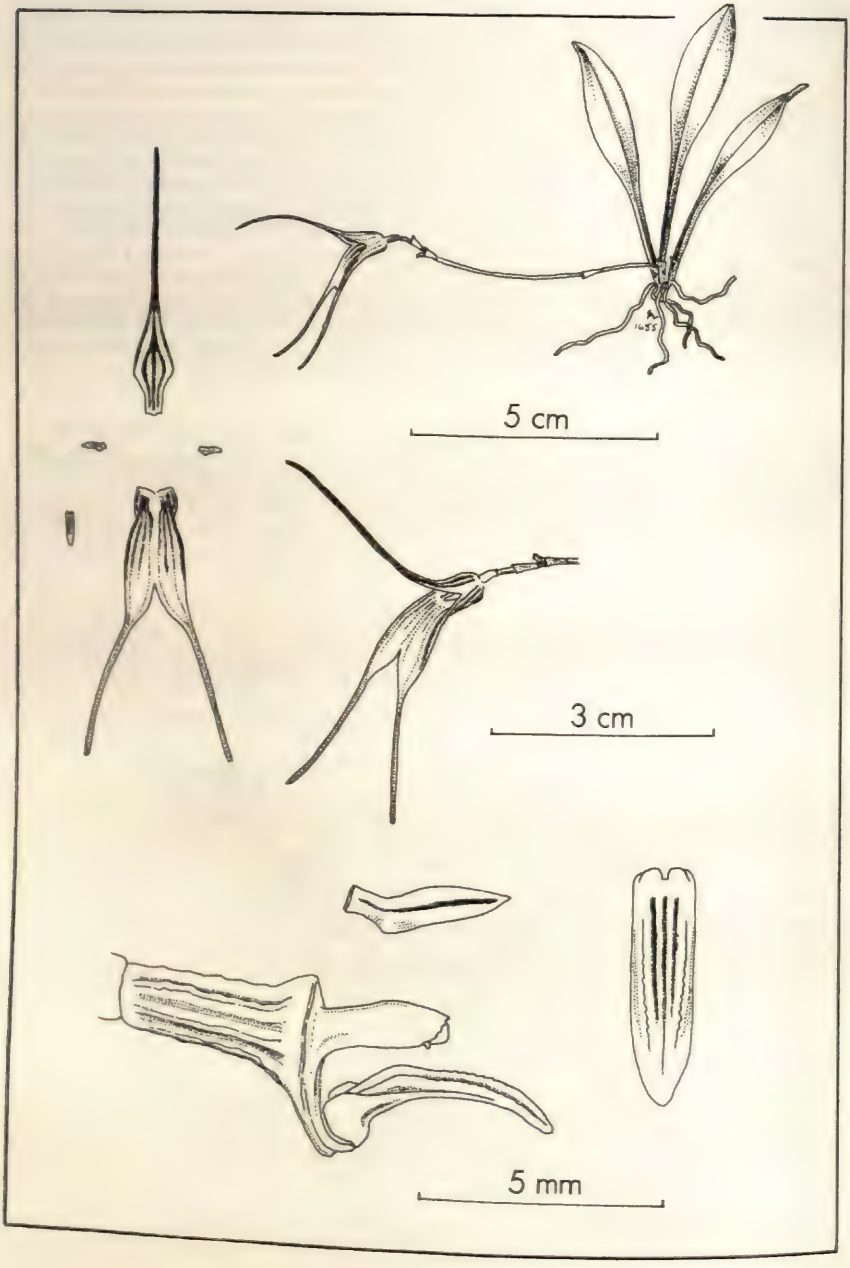


Plate 216. Masdevallia amaluzae

Masdevallia anachaeta Rchb.f., Otia Bot. Hamburgensia 1: 17, 1878.

Ety.: From the Greek *anachaete*, "strong hair," referring to the fringed ovary.

Syn.: *Masdevallia vulcanica* Lehm. & Kraenzl., Repert. Spec. Nov. Regni Veg. 17: 413, 1921.
Ety.: From the Latin *vulcanicus*, "volcanic," referring to the area of collection.

Syn.: *Masdevallia nutans* Lehm. & Kraenzl., Repert. Spec. Nov. Regni Veg. 17: 431, 1921.
Ety.: From the Latin *nutans*, "nodding," referring to the nutant flower.

Plant very small, epiphytic, caespitose; roots slender. Ramicauls erect, abbreviated, 3-13 mm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** coriaceous, erect, 10-33 cm long including a petiole 5-15 mm long, the blade narrowly elliptical, subacute, 4-5 mm wide, gradually narrowed below into the petiole. **Inflorescence** a small, solitary flower facing outwards to downwards, borne by a slender, erect peduncle 10-45 mm long, with a thin bract above the base, from low on the ramicaul; floral bract cucullate, 3-3.5 mm long; pedicel 0.5-5 mm long, with a well-developed filament; ovary lacerate-winged, 1-1.5 mm long; **dorsal sepal** white or yellow-white, marked with purple, elliptical, 5-7 mm long, 3 mm wide, connate to the lateral sepals for 2 mm to form a cylindrical tube, the acute apex contracted into a thick, occasionally slightly clavate, yellow, recurved tail 3-5 mm long; **lateral sepals** purple with greenish white margins, ovate-elliptical, 4-7 mm long, 2.5-3 mm wide, connate 2 mm, the acute apices contracted into yellow tails 3-5 mm long; **petals** oblong-subsigmoid, acute, 2 mm long, 0.5 mm wide, with a longitudinal callus along the labellar margin ending in an acute, retrorse tooth above the base, the opposite half with a callus along the middle third; **lip** deep purple, oblong-subpandurate, acute, 2.5 mm long, 1 mm wide, with a pair of marginal folds near the narrowed middle extending forward onto the anterior half as a pair of calli, the base obtuse-truncate, hinged beneath; **column** purple, semiterete, the apex minutely toothed, the foot 1.5 mm long with a minimal extension.

ECUADOR: **Pichincha**: Santo Domingo de los Colorados, in volcanic soil ("Lavaboden"), alt. 7,500 ft., Mar. 1877, *F.C. Lehmann 32* (Holotype: W); damp forest near Río Silante, western slopes of Corazón, alt. 7,500 ft., Aug. 1877, *F.C. Lehmann* (holotype of *M. vulcanica*: W); same area, alt. 2000 m, 14 Jan. 1881, *F.C. Lehmann 306* (holotype of *M. nutans*: W; isotype: G); El Cuello, between Quito and Santo Domingo, alt. 2000 m, 28 June 1939, *E. Asplund 7320*(S); near Mindo, alt. 2320 m, 13 Mar. 1982, *C. Luer & A. Hirtz 7300* (SEL); between Quito and Santo Domingo, alt. 2000 m, 31 Mar. 1984, *C. Luer, S. Dalström, T. Höijer, J. Kuijt & A. Hirtz 9819* (MO); same area, 30 Mar. 1985, *C. Luer, J. Luer & A. Hirtz 11021* (MO). **Carchi**: between the páramo and Maldonado, alt. 2500 m, 16 Feb. 1989, *S. Dalström & T. Höijer 1237* (MO); between El Playón and Santa Barbara, alt. 3400 m, 20 Mar. 1991, *C. Luer, J. Luer & A. Hirtz 15217* (MO). **Imbabura**: Los Cedros Reserve, alt. 1850 m, 27 Jan. 1993, *S. Dalström, T. Höijer & H. Wanntorp 1810* (MO). **Napo**: cloud forest between Baeza and Tena, alt. 2000 m, 23 Feb. 1982, *C. Luer & A. Hirtz 6881* (SEL); Cordillera de Guacamayo, alt. 1950 m, 13 Apr. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 11251* (MO). **Morona-Santiago**: between Macas and Guamote, alt. 1500 m, Dec. 1994, *A. Hirtz, X. Hirtz & J. Del Hierro 6059* (MO). **Loja**: south of Yangana north of the pass, alt. 2400 m, 23 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10888* (MO). **Zamora-Chinchipe**: cloud forest south of Yangana, alt. 2600 m, 3 Mar. 1982, *C. Luer, S. Dalström & D. D'Alessandro 7105* (SEL); between Loja and Zamora, alt. 2250 m, 22 May 1988, *C. Luer, A. Hirtz, W. Flores, A. Andreetta & W. Teague 13589* (MO).
COLOMBIA: **Norte de Santander**: Toledo, Alto de Santa Inés, alt. 2150 m, 23 May 1983, *C. Luer & R. Escobar 7942* (SEL). **Risaralda**: Pueblo Rico, Alto La Linea, alt. 2100 m, 11 May 1993, *C. Luer, J. Luer & R. Escobar 16776* (MO). **Cauca**: between Uribe and Quebraditas, alt. 2500 m, 26 Aug. 1978, *R. Escobar et al. s.n.* (JAUM). **Putumayo**: between San Francisco and Mocoa, alt. 2200 m, 2 Aug. 1978, *C. Luer, J. Luer, R. Escobar et al. 3134* (SEL).

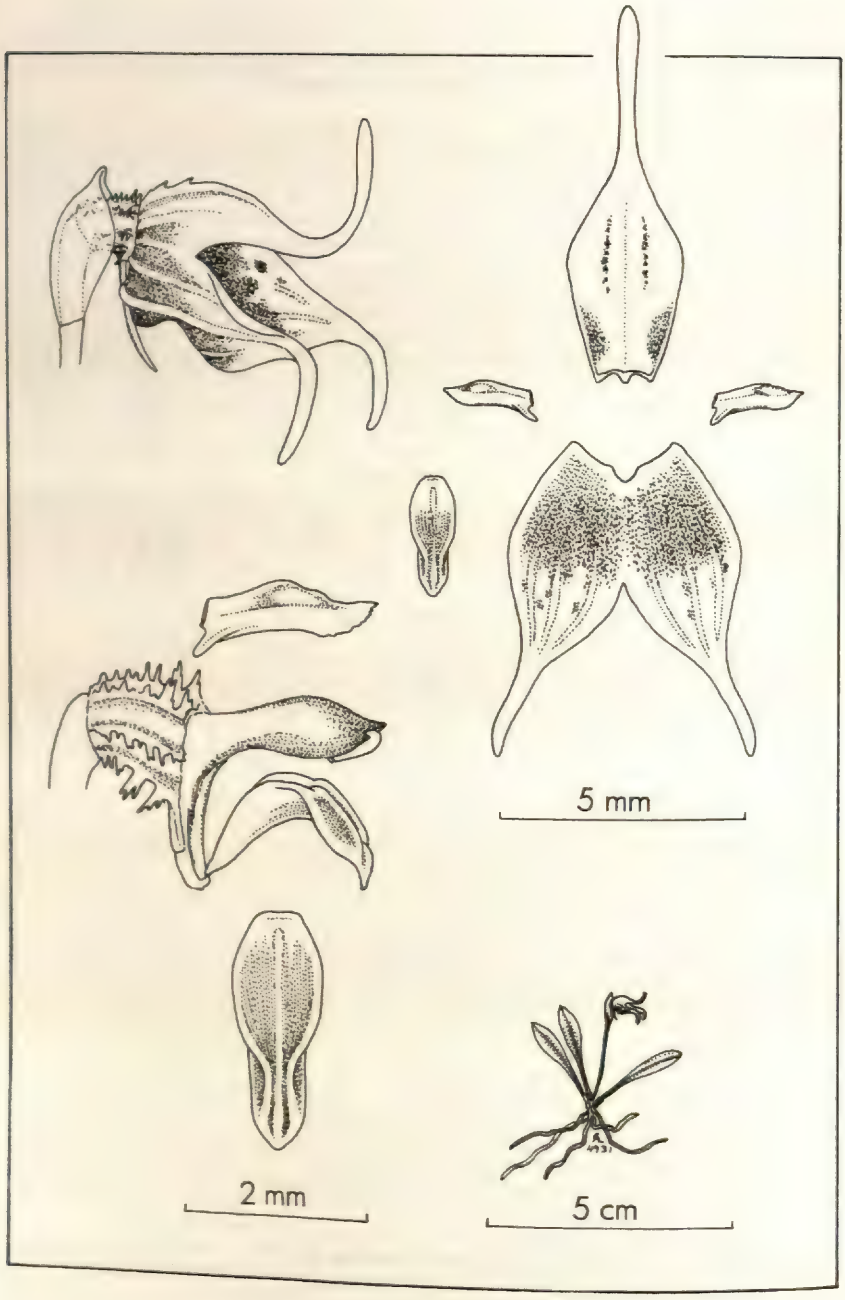


Plate 217. Masdevallia anachaeta

PERU: **Huánuco**: Huánuco, Carpish, alt. 2900 m, 20 Apr. 1984, *W. Königer, H. Königer & M. Arias K-108a* (K, M, SEL, USM, W, Herb. H. Königer).
BOLIVIA: **La Paz**: Nor Yungas, west of Coroico, alt. 2550 m, 27 Jan. 1983, *C. Luer, J. Luer & R. Vásquez 8613* (SEL). **Cochabamba**: Chapare, between Cochabamba and Villa Tunari, alt. 2500 m, 22 Jan. 1980, *C. Luer, J. Luer & R. Vásquez 4931* (SEL); same area, alt. 1750 m, 15 Jan. 1988, *C. Luer, J. Luer, R. Vásquez, T. & D. Mulder 12830* (MO); old road from Villa Tunari to Cochabamba, alt. 1650 m, 30 Jan. 1997, *C. Luer, J. Luer, R. Vásquez, D. Ric & W. Teague 18334* (MO); Carrasco, Sehuencas, alt. 2100 m, *P. Ibisch 94.0182* (MO).

This tiny species occurs frequently from the Eastern Cordillera of Colombia to central Bolivia at altitudes between 1500 and 3500 meters above sea level. Reichenbach described it from a collection by Lehmann from the western slopes of Pichincha where it is relatively common. It grows equally well on tiny branches of small, cloud forest trees, on the trunks of large trees, or on wet, mossy embankments. It is infrequently collected because the minute plants are easily overlooked.

The species is characterized by very small, narrowly obovate leaves, and single-flowered peduncles. The ovaries are carinate and spiculate, and the flowers are often deflexed. The sepals are whitish or yellowish and variously mottled and suffused with purple, and they terminate in more or less thickened, yellow tails about as long as the blade. The petals are narrow and acute, with an acute, retrorse, basal process. The lip possesses a pair of lamellate calli above the middle.

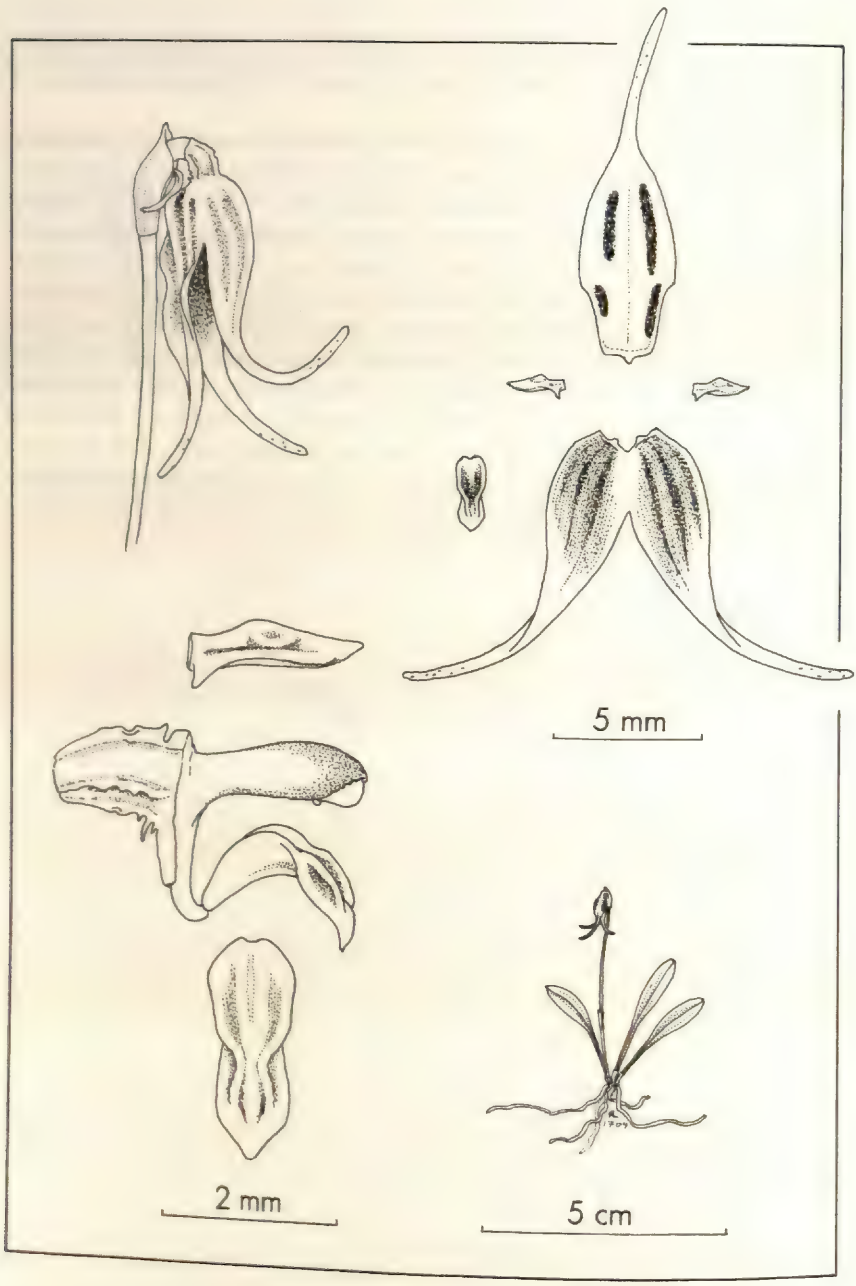


Plate 218. Masdevallia anachaeta

Masdevallia aphanes Königer, Die Orchidee 30: 196, 1979; emend. 36: 87, 1985.

Ety.: From the Greek *aphanes*, "obscure," referring to the inconspicuous, tiny, rare plant.

Plant small, epiphytic, caespitose; roots slender. Ramicauls blackish, 5-10 mm long, enclosed by 1-2 short, tubular sheaths. **Leaf** erect, coriaceous, 2-3.5 cm long including the 0.5-1.5 cm long petiole, the blade elliptical, obtuse, 0.5-0.6 cm wide, narrowly cuneate below into the blackish petiole. **Inflorescence** a single flower, usually followed by a second flower, borne by a slender, suberect peduncle 3-5 cm long, with a bract near the middle, from low on the ramicaul; floral bract 3 mm long; pedicel 3-5 mm long; ovary 3-4 mm long, verrucose; **sepals** thick, more or less verrucose externally, especially along the prominent veins, dull yellowish green, diffusely spotted and suffused with brown, the dorsal sepal ovate, 13-14 mm long, 5 mm wide, connate 4-5 mm to the lateral sepals to form a short, broad, sepaline tube, the free portion forward, triangular, narrowly obtuse at the fleshy apex, the lateral sepals ovate, 14 mm long, 6 mm wide, connate 6 mm, connate 5 mm to the column-foot to form a deep mentum, the free portions forward, obliquely triangular, narrowly obtuse; **petals** yellow-green, spotted with dark purple, elliptical, 6 mm long, 3.5 mm wide, acute, with a low callus along the lower margin; **lip** heavily spotted with dark purple, spathulate, 7 mm long, 3 mm wide, oblong and verrucose above the unguiculate lower third, the margins of the blade undulate and irregular, the apex obtuse to rounded, with a longitudinal pair of central calli from the base to near the apex where a midline callus develops, the narrow base retuse, hinged below; **column** yellow, semiterete, 5 mm long, the foot equally long, with a short, incurved extension.

PERU: **Amazonas**: epiphytic in cloud forest between Chachapoyas and Pomacochas, alt. 2000 m, Aug. 1978, *W. Königer, H. Königer, B. Würstle & J. Meza K-3j* (Holotype: SEL; clonotypes: K, M, USM, W, Herb. H. Königer); same collection, cultivated in Munich, Germany, by W. Königer, Mar. 1979, *C. Luer 4068* (SEL).
ECUADOR: **Carchi**: epiphytic in cloud forest between Tulcán and Maldonado, alt. ca. 2000 m, July 1975, collected by Walter Teague, cultivated in San Francisco, CA, Aug. 1979, *C. Luer 4118* (SEL); same area, alt. 1900 m, 15 Feb. 1989, *S. Dalström & T. Höijer 1228* (MO); same area, alt. 1700 m, collected and cultivated by *F L Stevenson 92-10109-1* (MO). **Sucumbíos**: near La Bonita, Nov. 1991, collected by A. Hirtz, cultivated at J & L Orchids, Eaton, CT, 12 Mar. 1994, *C. Luer 17122* (MO).

A painting of this species by Consul F.C. Lehmann, *128*, labeled with the intended name "M. trifurcata", is deposited at Kew. Apparently neither collection data nor herbarium specimen exists. *Masdevallia aphanes* is found sporadically through the Andes of Ecuador into Peru.

Tiny caespitose plants with narrowly elliptical leaves produce a small brown flower that is slowly followed by a second. The ovary is crested and verrucose. The narrowly triangular sepals with thickened apices are lightly verrucose with prominent veins externally. The petals are thickened along the labellar margin. The lip is traversed by a pair of low, undulate calli, and the unguiculate is formed by revolute margins.

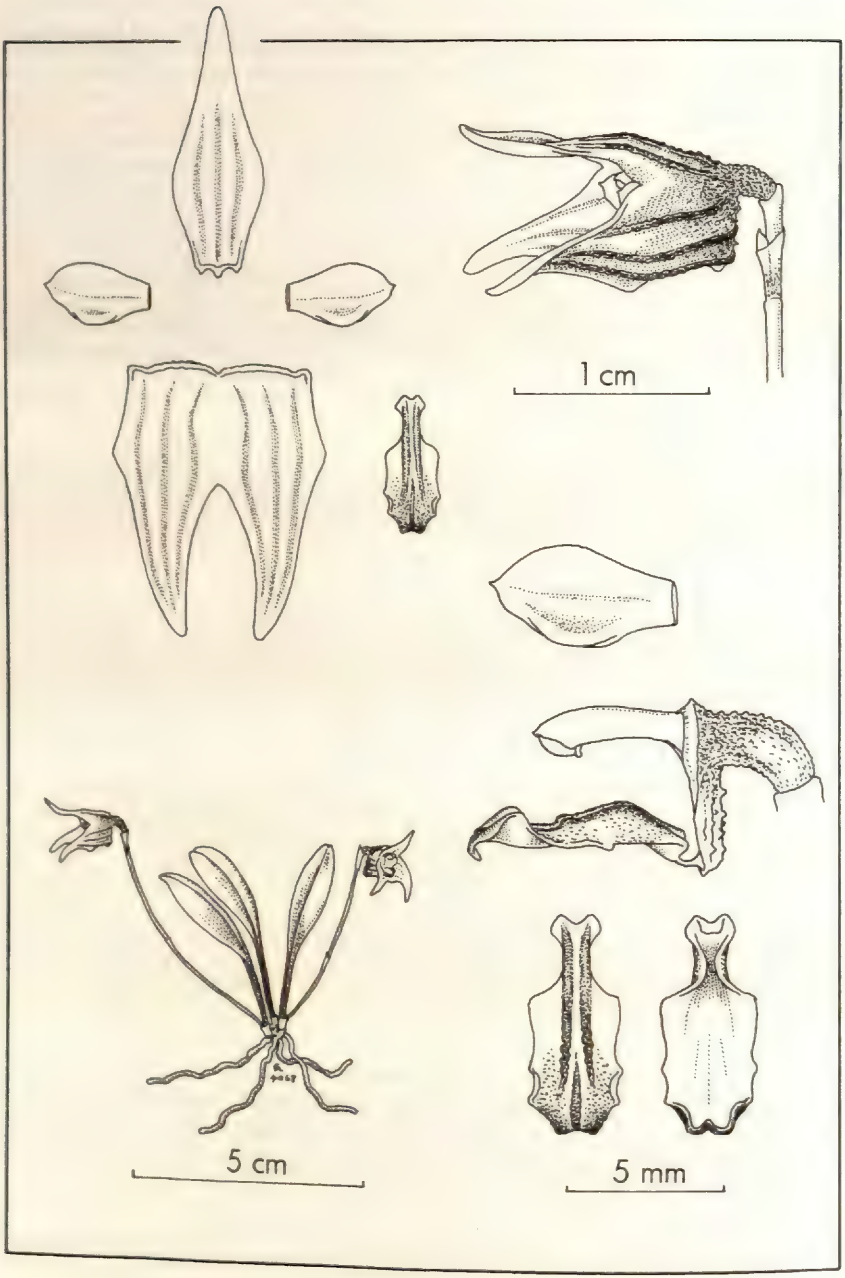


Plate 219. Masdevallia aphanes

Masdevallia audax Königer, Die Orchidee 37: 106, 1986.

Ety.: From the Latin *audax*, "audacious," referring to the outstretched labellum.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls blackish, slender, erect, 2-4 cm long, enclosed by 2-3 thin, close, tubular sheaths. **Leaf** erect, coriaceous, narrowly to linear-obovate, acute, 10-15 cm long including an indistinct petiole ca. 4 cm long, 0.9-1.2 cm wide, gradually narrowed below into the narrow, subpetiolate base. **Inflorescence** a successively few-flowered, congested raceme, borne by a slender, erect peduncle, 3-4 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular, 8-9 mm long; pedicel 12 mm long; ovary 5-7 mm long; **sepals** greenish white, glabrous, the dorsal sepal oblong, 30 mm long including the attenuated apex, 3.5 mm wide, connate to the lateral sepals for 9 mm into a cylindrical tube, the free portion narrowly triangular, acute, attenuate, the lateral sepals oblong, oblique, acute, 30 mm long including the attenuated apex, connate 9 mm to form the concave lower half of the sepaline tube, 8 mm wide expanded, the free portions narrowly triangular, acute, attenuate; **petals** white, narrowly ovate, with the margins minutely erose, 8-9 mm long, 1.75 mm wide, the apex thickened, narrowly acute; **lip** white, protruding, narrowly elliptical-obovate, 17-20 mm long, 2.5 mm wide, the apex acute, long-attenuate, the disc featureless, shallowly concave toward the base, the base subtruncate, hinged on the end; **column** white, semiterete, 5 mm long, the apex tridentate-erose, the foot 1 mm long with an incurved extension.

PERU: **Amazonas**: Bongará, near Pomacochas, alt. 2200 m, Aug. 1979, *W. Königer, H. Königer & J. Meza K-21h* (Holotype: M); same collection, cultivated by W. Königer in Munich, 15 Aug. 1984, *C. Luer 10408* (MO).

This species, apparently endemic in Amazonian Peru, is known only from the type-collection by the Königers in 1979. All plants currently in cultivation stem from the original collection.

Vegetatively, the species is characterized by very slender leaves and short, successively flowered peduncles. The greenish white sepals are long-acuminate and recurving beyond the narrow, sepaline tube. The petals also are long-acuminate, but too short to protrude from the tube. The lip is also long-attenuate and it protrudes conspicuously from the sepaline tube between the lateral sepals.

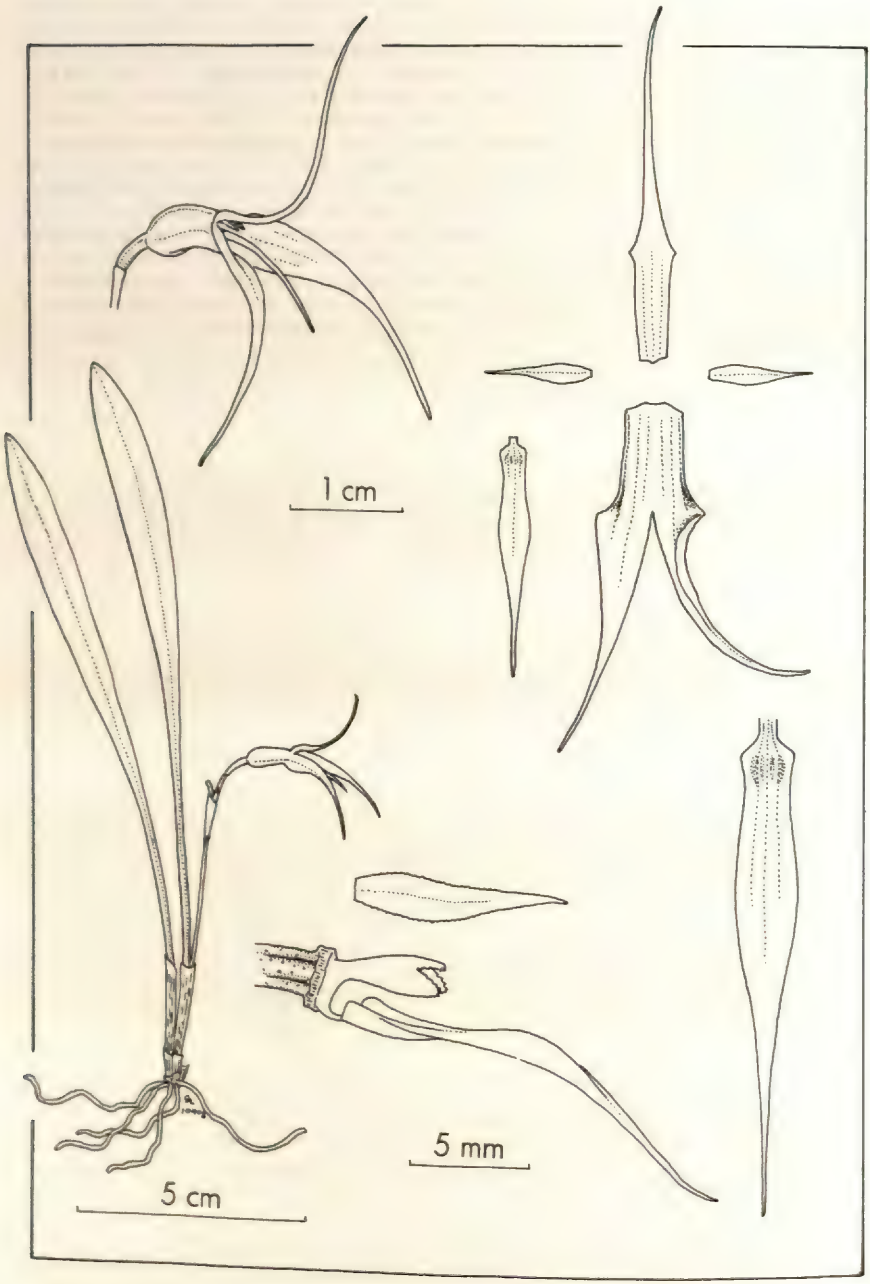


Plate 220. Masdevallia audax

Masdevallia aurorae Luer & M.W.Chase, Lindleyana 8: 39, 1993.

Ety.: Named in honor of Aurora Bennett of Lima, Peru, who with her husband David and Mark Chase, discovered this species.

Plant small, epiphytic, densely caespitose; roots slender. Ramicauls slender, erect, 4-8 mm long, enclosed by 2 thin, loose, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 25-35 mm long including a petiole ca. 10 mm long, the blade narrowly elliptical, acute, 3-5 mm wide, narrowly cuneate below into the petiole. **Inflorescence** a single flower, borne by a slender, suberect to ascending peduncle 5-7 cm long, with a thin bract on the lower third, from the base of a ramicaul; floral bract tubular, 4-5 mm long; pedicel 4 mm long; ovary 2 mm long; **sepals** membranous, creamy white suffused with rose, each with 3 purple stripes, glabrous, the dorsal sepal ovate, 18 mm long including the tail ca. 9 mm long, 4.5 mm wide, connate to the lateral sepals for 3 mm to form a cylindrical tube, the free portion triangular, acute, acuminate into the slender tail, the lateral sepals ovate, acute, oblique, 18 mm long including the tail ca. 9 mm long, connate 4 mm; **petals** white with red-purple midvein, elliptical, acute, 3.9 mm long, 1.25 mm wide, the labellar margin slightly thickened with a longitudinal carina ending above the basal fourth; **lip** striped in red-purple, thick, elliptical-oblong, 4.75 mm long, 2.4 mm wide, the apex obtuse to rounded, the disc with a low pair of longitudinal calli in the middle third, the base subcordate, hinged beneath; **column** white with purple margin, semiterete, 2.75 mm long, the foot 2 mm long with a short, incurved extension.

PERU: **Pasco**: epiphytic in elfin forest on road to Cacasu, alt. 1800 m, collected 16 Nov. 1987, by M. Chase, D. Bennett & A. Bennett, cultivated in Chapel Hill, NC, *M. Chase 87223* (Holotype: MO), C. Luer illustr. 15517.

This little species from central Peru is most closely related to *M. paquishae* described from southeastern Ecuador. It is distinguished from *M. paquishae* by the much smaller, narrower leaves; possibly only a single flower; thicker sepaline tails; and a thick lip with the apex rounded. Although a second or more flowers are eventually produced in a raceme in all the other members of the section, only one is produced by the plants of *M. aurorae* in cultivation. A very immature bud was observed within the floral bract of the flower dissected. All the peduncles produced by the plant cultivated by Chase wither with the passing of the first flower. It is possible that other clones produce a second flower.

A plant known as the "pink amaluzae" from Peru without collection data was illustrated 24 Oct. 1979 from a plant in cultivation by the Robledos at La Ceja, Colombia. At that time it was deemed too close to *M. amaluzae* to recognize.

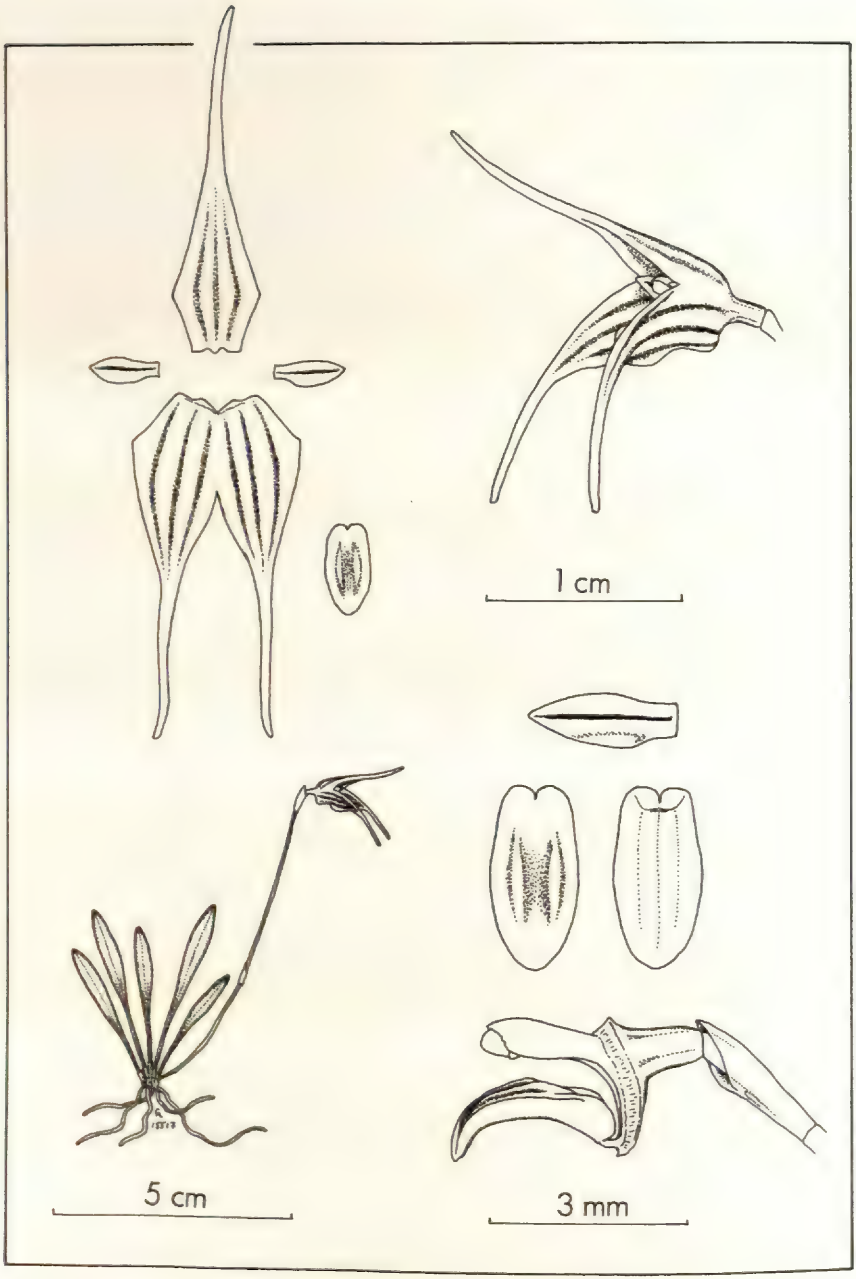


Plate 221. Masdevallia aurorae

Masdevallia berthae Luer & Andreetta, Lindleyana 4: 105, 1989.

Ety.: Named in honor of Sra. Bertha de Portilla, wife of Mario Portilla, who discovered this species.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, blackish, 5-6 mm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 25-48 mm long including the petiole 5-10 mm long, the blade narrowly elliptical, obtuse to subacute, 10-13 mm wide, cuneate below into the petiole. **Inflorescence** a succession of solitary flowers, up to at least 5 borne in a congested raceme up to 15 mm long, by a slender, descending, pendent peduncle 25-35 mm long, with a bract near the middle and at the base, from low on the ramicaul; floral bract tubular, 2-3 mm long; pedicel 5-7 mm long; ovary costate, 5 mm long; **sepals** fleshy, light green, ovate with revolute margins, acute, the dorsal sepal finely dotted with purple externally, 18-21 mm long, 8 mm wide, connate to the lateral sepals for 5 mm to form a short, cylindrical, sepaline tube, the lateral sepals lightly suffused with rose in the middle third, dotted with dark purple at the base within, oblique, 18-20 mm long, 8 mm wide, connate 5 mm; **petals** white, cartilaginous, more or less oblong, 5 mm long, 2.5 mm wide, twisted above the middle, the apex obtuse, shallowly notched, the labellar half markedly callous in the middle third; **lip** dull white, sparsely short-pubescent and dotted with brown below the middle, 7 mm long, 4.5 mm wide, the sides acutely angled at the middle from marginal folds, the apical half deflexed, rounded, the disc essentially featureless, the base subcordate, hinged beneath; **column** white, semiterete, 5.5 mm long, the foot 4 mm long including a free, incurved extension.

ECUADOR: **Morona-Santiago**: Río Calagrás, alt. 1600 m, collected by Bertha and Mario Portilla, 5 Aug. 1988, cultivated by A. Andreetta at Paute, 12 Jan. 1989, *C. Luer 13853* (Holotype: MO).

This species is known only from the original collection by Mario Portilla and his wife in southeastern Ecuador. It is easily distinguished by the pendent raceme that bears successively a comparatively large, greenish flower with a short, sepaline tube and acute, tailless sepals. The petals, twisted above the middle, bear a thick callus along the labellar margin. The lip is simple except for a pair of acute angles at the middle of both sides created by the revolute margins. It is similar to the lip seen in several species of subsection *Saltatrices* (e.g., *M. ampullacea* and *M. constricta*).

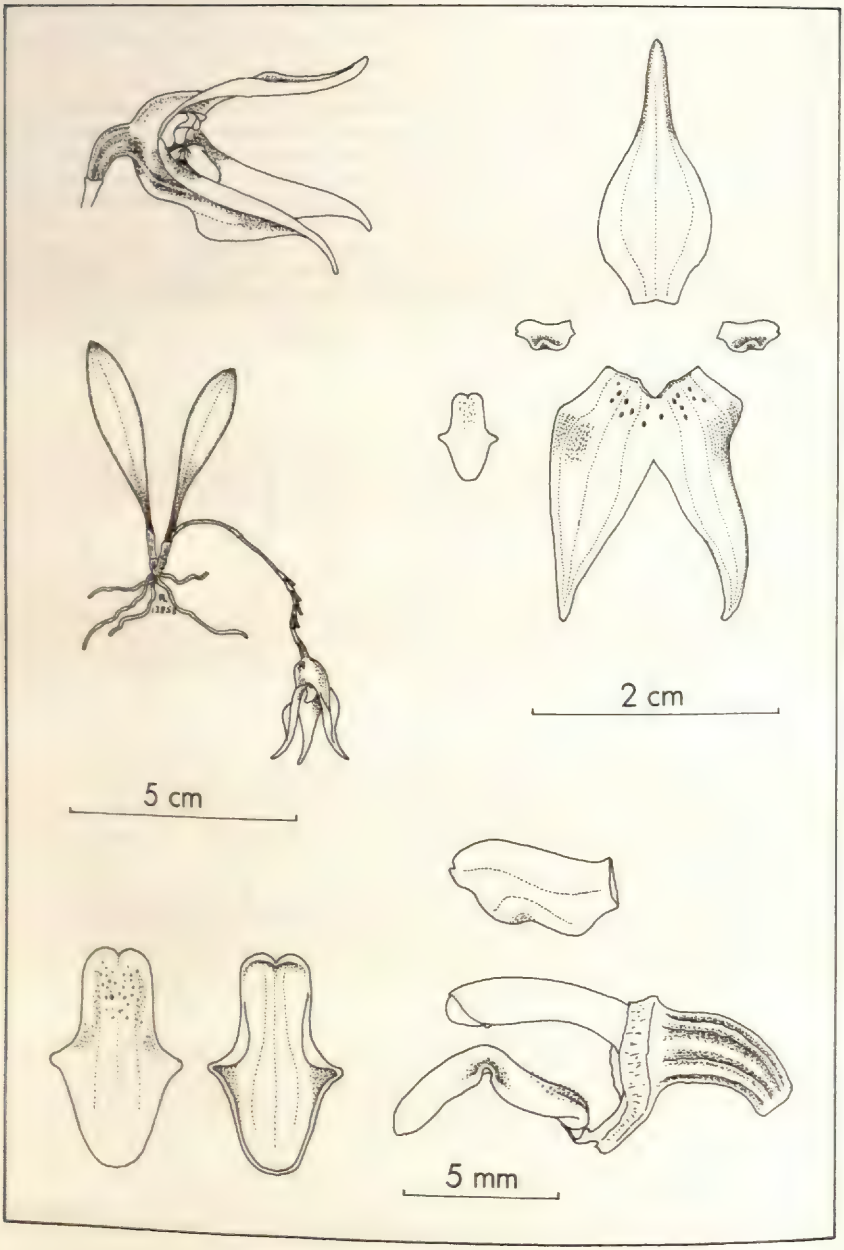


Plate 222. Masdevallia berthae

Masdevallia carmenensis Luer & Malo, Phytologia 39: 191, 1978.

Ety.: Named for the village of El Carmen, where this species was cultivated by Malo.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 1-1.5 cm long, enclosed by 2-3 short, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 5-8 cm long including the petiole 1-2.5 cm long, the blade narrowly elliptical, acute, 1.4-1.7 cm wide, the base cuneate into the slender petiole. **Inflorescence** a subdense, successively few-flowered raceme borne by a slender, more or less horizontal peduncle 5-6 cm long, with a bract below the middle, from low on the ramicaul; floral bract tubular, 5 mm long; pedicel 7 mm long; ovary 3 mm long, 6-ribbed; **sepals** greenish white, prominently striped in deep purple, with zones of purple suffusion between the stripes, subcarinate along the veins externally, the dorsal sepal obovate, 18 mm long, 6 mm wide, connate to the lateral sepals for 12 mm to form a cylindrical tube, the free portion narrowly triangular, microscopically erose, 3-veined, the acute apex produced into a slender white tail 30 mm long, the lateral sepals ovate, 30 mm long, connate 20 mm into a bifid lamina 17 mm wide, forming at the base a small mentum with the column-foot, 6-veined, cellular-glandular within, the free portions triangular, white, the acute apices acuminate into slender, white tails similar to that of the dorsal sepal; **petals** white, marked with red-purple, oblong, 6 mm long, 1.75 mm wide, the apex acute, the lower margin with a rounded callus at the base; **lip** white, oblong-obovate, 8 mm long, 4.25 mm wide above the middle, arcuate, the apex obtuse, the disc with a longitudinal pair of low, converging lamellae, the base thickened, truncate, with erect, broadly rounded margins, hinged beneath; **column** green, marked with purple, semiterete, 4 mm long, the foot thick, 6 mm long including the incurved extension.

ECUADOR: **Morona-Santiago**: epiphytic in cloud forest on the eastern slopes of the Andes, alt. 2200 m, April 1975, collected by B. Malo, cultivated at Tarqui near Cuenca, 4 Feb. 1978, *C. Luer 2455* (Holotype: SEL); epiphytic in wet forest east of the pass east of Sigsig, alt. 2700 m, 15 May 1988, *C. Luer, A. Hirtz, W. Flores, A. Andreetta & W. Teague 13356* (MO); between Sigsig and Chiguinda, alt. 2600 m, 11 Aug. 1990, *A. Hirtz 5051* (MO).

This species occurs locally, sometimes abundantly, in cloud forests of southeastern Ecuador. The site of the original collection by B. Malo had been forgotten.

Masdevallia carmenensis is most similar to *M. patula* from which it is distinguished by the more deeply connate, white, purple-veined sepaline tube, and the smaller, non-expanded blade of the synsepal. Flowers in cultivation become considerably smaller than the flowers found in the wild. The petals are acute and the lip is obovate with erect, broadly rounded margins of the basal third.

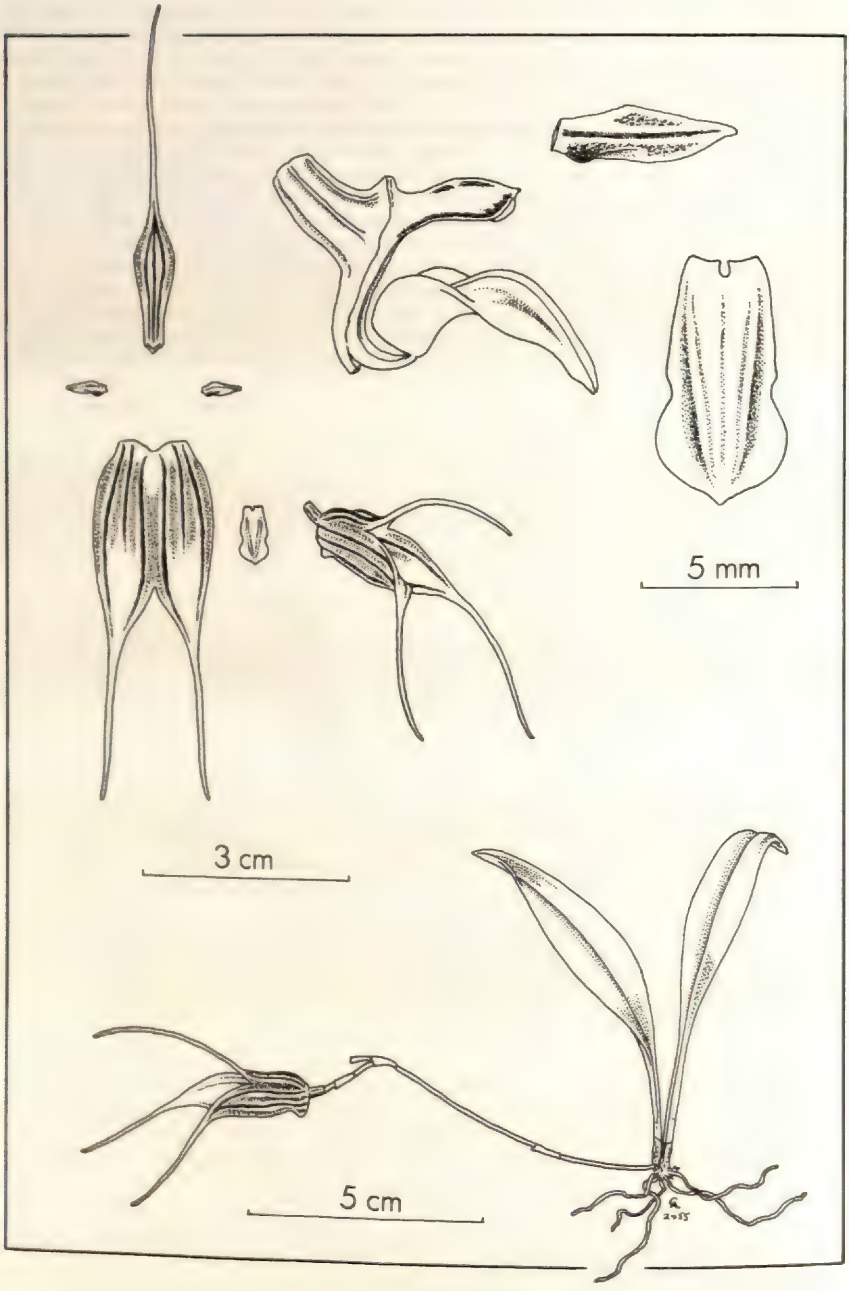


Plate 223. Masdevallia carmenensis

Masdevallia chimboënsis Kraenzl., Bull. Misc. Inform. 106, 1925.

Ety.: Named for Río Chimbo, where Kränzlin thought the specimen before him had been collected.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 0.5-1 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, shortly petiolate, 3-5.5 cm long including the petiole ca. 1 cm long, the blade elliptical, subacute to obtuse, 1-1.5 cm wide, the base cuneate into the petiole. **Inflorescence** a succession of single, distant flowers borne in a few-flowered raceme, borne by a slender, ascending peduncle 3.5-4.5 cm long, green, speckled with purple, with a bracts below the middle and near the base, from low on the ramicaul; floral bract thin, tubular, 5 mm long; pedicel 8 mm long; ovary 4 mm long; **sepals** greenish, sparsely short-pubescent interiorally, the dorsal sepal dotted with purple along the veins, ovate, 10 mm long, 6 mm wide, connate to the lateral sepals for 5 mm into a sepaline tube, the apex acute, contracted into a thick, forwardly directed, yellow-green tail 6-7 mm long, the lateral sepals mottled with purple below the middle, suffused with purple along the veins above the middle, ovate, oblique, 10-11 mm long, 7 mm wide, connate 6 mm forming a mentum with the column-foot, the apices acute, contracted into tails 6-7 mm long similar to that of the dorsal sepal; **petals** yellow, narrowly ovate, acute, 6 mm long, 1.5 mm wide, thickened along both margins, the base subunguiculate; **lip** dull yellow, mottled with rose, oblong, 8 mm long, 3 mm wide, the apex rounded, faintly subverrucose, with a central callus beneath, the disc shallowly channeled between a pair of low, longitudinal calli, with an indistinct fold near the middle, the base subcordate, hinged beneath to the column-foot; **column** green, with purple margins, semiterete, 5 mm long, the foot slender, 3 mm long, with a short, incurved extension.

COLOMBIA: **Valle del Cauca**: [in error: "Ecuador: forests of Puente de Chimbo, Western Andes of Milagro, 200-300 m,"] Río Dagua, ca. 1883, *F.C. Lehmann 6748* (Holotype: K); Buenaventura, Baja Anchicayá, Río Tatabro, alt. 60 m, collected by E. Costantino, 10 May 1989, *C. Luer 14447* (MO, herb. H. Königer).

This species has been one of the most intriguing mysteries of the Masdevallias. It was described by Kränzlin from a single specimen collected by Lehmann with his number *6748* in his handwriting. The data added to the label in a different handwriting state: "Ecuador: Forest of Puente de Chimbo, W. Andes of Milagro, 200-300 m, Bl. April & May."

A watercolor painting at Kew by Lehmann, labeled "Masdevallia daguensis" Lehm., appears to be this species, and in the upper corner Lehmann had written "Herb. No. 6748." It then became apparent that this plant had been found near Río Dagua in the present-day department of Valle del Cauca, Colombia, where, indeed, it was recently rediscovered.

Vegetatively, it is a small, caespitose plant with the flowers produced slowly and successively in a loose raceme borne by a slender, more or less horizontal peduncle that gradually ascends. The yellow-green tails of the sepals are about as long as the purple-mottled blades; the petals are acute with the margins callous; and the oblong lip is longitudinally callous.

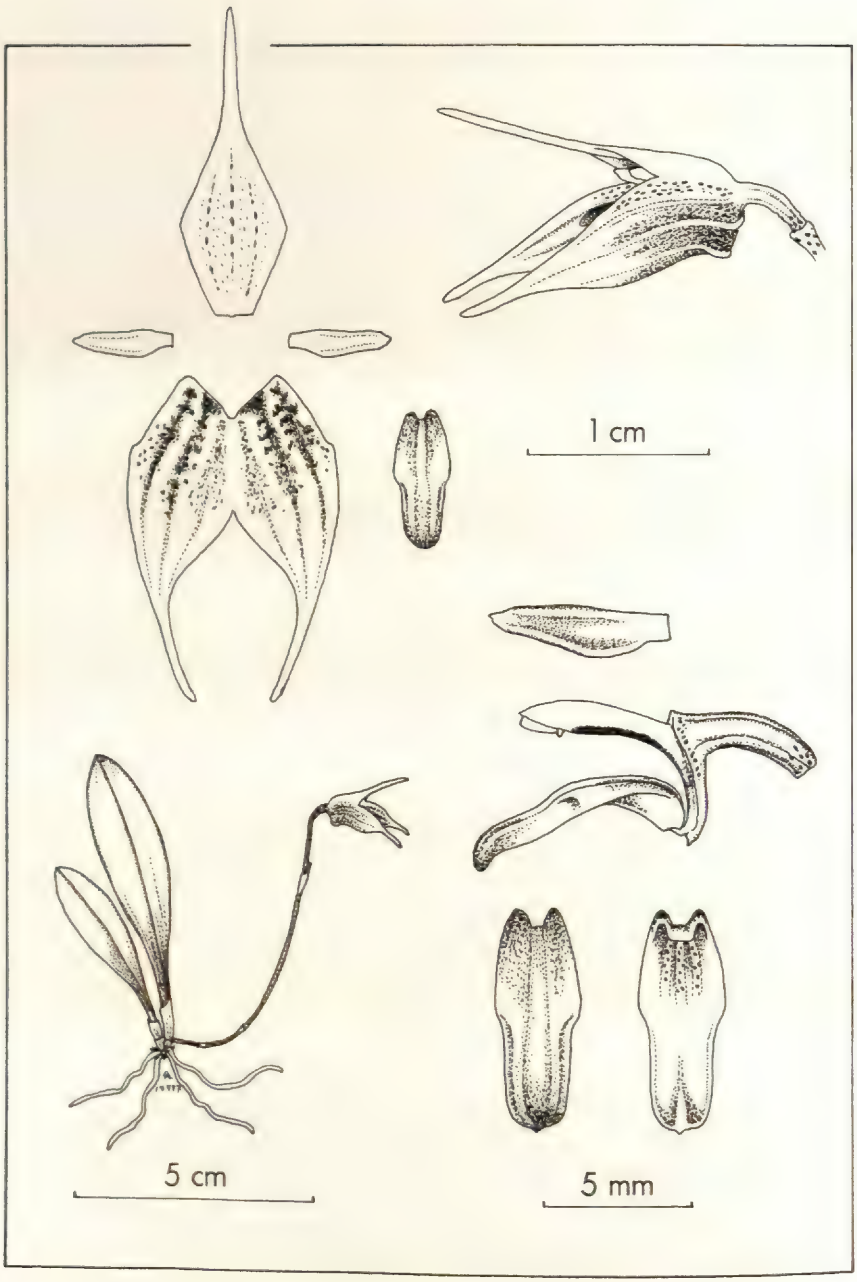


Plate 224. Masdevallia chimboënsis

Masdevallia collantesii D.E.Benn. & Christenson, Lindleyana 13: 55, 1998.

Ety.: Named for Benjamin Collantes, avid orchid enthusiast, who cultivated this species.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 5-7 mm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical, subacute, 3-3.5 cm long including the petiole ca. 5 mm long, 5 mm wide, the base narrowly cuneate into the petiole. **Inflorescence** a single flower, probably followed by another, borne by a slender, suberect, peduncle, 2 cm long, with a bract below the base, from low on the ramicaul; floral bract 3 mm long; pedicel 2.5 mm long; ovary 2.5 mm long with low-crested, undulate carinae; **sepals** fleshy, glabrous, lemon yellow, the dorsal sepal oblong, flecked with purple, 11 mm long, 3 mm wide, 3-veined, connate to the lateral sepals for 4 mm to form a cylindrical tube, free portion antrorse, oblong with recurved sides, the lateral sepals suffused with purple below the middle, oblong-ovate, oblique, 11 mm long, 5 mm wide, connate to each other for 5 mm, forming a shallow mentum with the column-foot; **petals** green, suffused with purple, oblong-obovate, obtuse-sublobulate, 3 mm long, 1.5 mm wide, with a broad, obtuse callus on the mid-labellar margin, narrowed above the base; **lip** orange, spotted with dark purple, thick, oblong, 4 mm long, 2 mm wide, the apex minutely spiculate, with the margin rounded, minutely serrate, the disc with a pair of erect, minutely irregular, longitudinal calli from the basal angles to above the middle, the base subtruncate, hinged beneath; **column** semiterete, 2.5 mm long, the foot thick, 2 mm long, with an incurved extension.

PERU: **Cajamarca**: San Ignacio, Jaen, La Palma village, alt. 1450 m, Aug. 1993, collected by M. Cavero, B. & M. Leon M., Aug. 1993, flowered in cultivation by B. Collantes, Sept. 1994, *D. Bennett 6780* (Holotype: MOL; Isotypes: USM, MO), C. Luer illustr. 18843.

This little species is apparently endemic in northeastern Peru. It is most closely allied to *M. expers* of neighboring southeastern Ecuador. It is distinguished by the small, caespitose habit; a slender peduncle shorter than the leaf that bears a proportionately large flower; fleshy sepals with thick, obtuse, free portions; petals obtusely callous on the labellar margin; and a thick, oblong, spotted lip with a minutely spiculate apex and a distinct pair of flattened carinae extending from the basal angles to above the middle.

An immature bud is present within the floral bract beside the pedicel of the only flower seen. It does not appear to be a sterile filament.

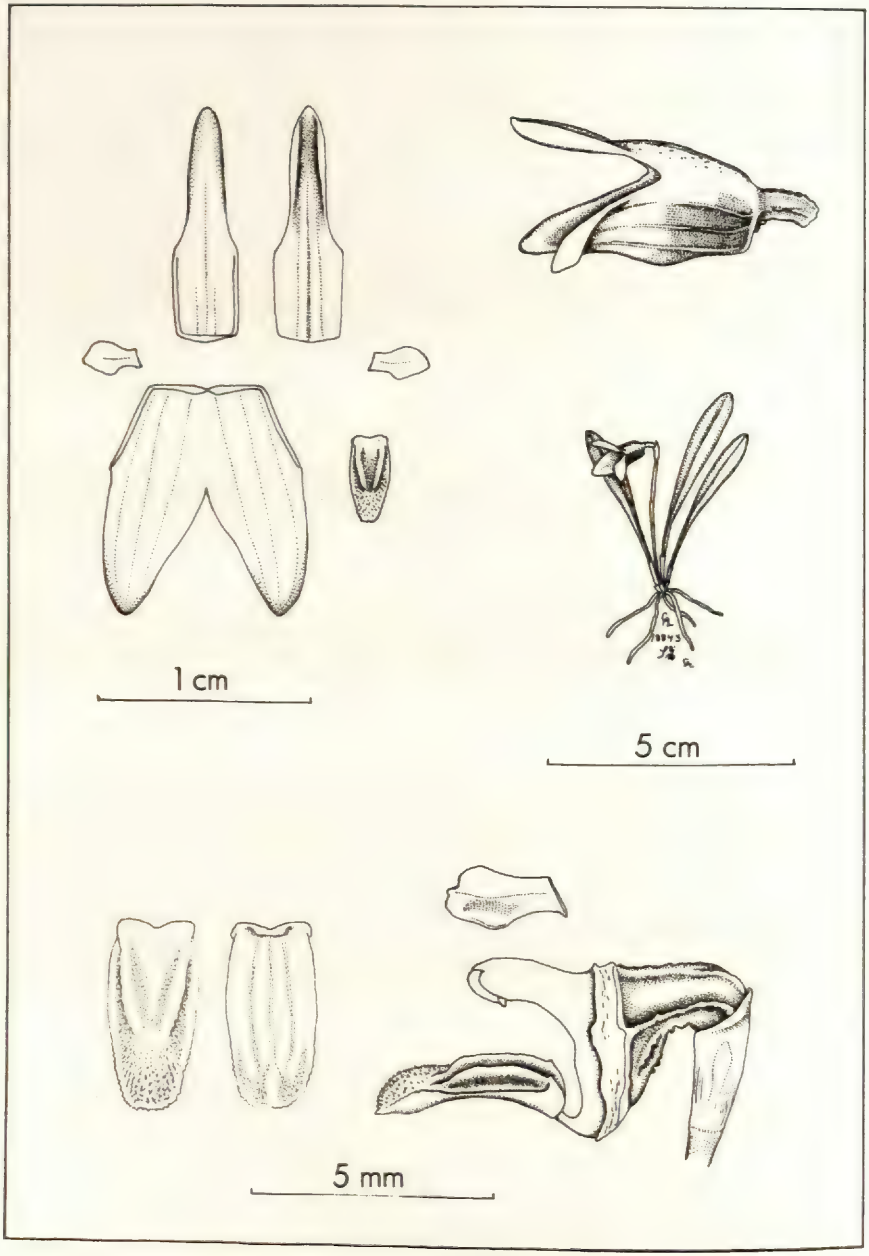


Plate 225. Masdevallia collantesii

Masdevallia erinacea Rchb.f., Linnaea 41: 11, 1877.

Ety.: From the Latin *erinaceus*, "the European hedgehog," in allusion to the spiny exterior of the flower.

Syn.: *Masdevallia echinocarpa* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 7: 78, 1920.
Ety.: From the Greek *echinos*, "hedgehog," and *karpos*, "fruit," referring to the capsules.

Syn.: *Scaphosepalum erinaceum* (Rchb.f.) Schltr., Repert. Spec. Nov. Regni Veg. Beih. 7: 219, 1920.

Syn.: *Masdevallia horrida* Teuscher & Garay, Amer. Orchid Soc. Bull. 29: 23, 1960.
Ety.: From the Latin *horridus*, "prickly," referring to the echinate sepals and capsules.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 2-13 mm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect to suberect, thickly coriaceous, narrowly obovate to narrowly semiterete, acute, 2-6 cm long, 0.15-0.5 cm wide, gradually narrowed below into the subpetiolate base. **Inflorescence** a slowly successive, few-flowered raceme, borne by a slender suberect peduncle 3-6 cm long, with a bract near the base, from low on the ramicaul; floral bracts tubular, imbricating, 3-6 mm long; pedicel 3-5 mm long; ovary echinate, 1.5-2 mm long, 2 mm thick; **sepals** greenish white to yellowish white, mottled with red or purple, echinate along the margins and carinate veins externally, the dorsal sepal broadly ovate, 4-7 mm long, 5-7 mm wide, connate to the lateral sepals for 3-5 mm to form a broad cup, the free portion broadly rounded, abruptly contracted into an orange, clavate tail 5-10 mm long, the lateral sepals transversely ovate, oblique, 5-9 mm long, connate 4-8 mm to form a transverse synsepal with a broad mentum, the rounded to transverse free portions contracted into tails similar to that of the dorsal sepal; **petals** greenish or translucent white, obovate, 2.5-3 mm long, 1.5-1.75 mm wide, the rounded apex minutely and distantly toothed, or minutely apiculate and microscopically serrate, the labellar half with a rounded, finlike carina near the base; **lip** yellow to orange, flecked with purple, thick, elliptical-oblong, 3.5-5.5 mm long, 1.75-2.4 mm wide, the apex rounded to obtuse, the disc with a pair of calli that begin along the margin below the middle, becoming verrucose toward the apex, the base subcordate with shallowly concave basal lobes; **column** green, semiterete, 2.5-3 mm long, the foot equally long with a short, incurved extension.

COLOMBIA: **Antioquia**: "Medellín," *B. Roezl s.n.* (Holotype: W); without locality, *M. Madero s.n.* (holotype of *M. echinocarpa*: destroyed at B); Frontino, 1880, *G. Schmidtchen s.n.* (W); Frontino, alt. 2000 m, 23 Oct. 1884, *F.C. Lehmann 4138* (G); Frontino, alt. 1600 m, *F.C. Lehmann 7002* (AMES, K); Frontino, Cerro Plateado, alt. 1500-2000 m, Oct. 1891, *F.C. Lehmann 7252* (K); San Luis, Río Dormilón, alt. 1650 m, flowered in cultivation by M. & O. Robledo, 15 Oct. 1977, *C. Luer 2038* (SEL); Alejandro, alt. 1000 m, collected by M. Zapata, July 1993, cultivated at Colomborquídeas, *C. Luer 17962* (MO). **Cauca**: Buenaventura near the coast, 29 Oct. 1880, *F.C. Lehmann 23* (G, K, W); same locality, 16 Mar. 1883, *F.C. Lehmann 2634* (G). **Chocó**: Bahia Solano, alt. 200 m, collected by G. Misas, flowered in cultivation 7 Oct. 1977, *C. Luer 1944, 1945* (SEL). ECUADOR: **El Oro**: El Cuiho above Santa Rosa, alt. 400-600 m, Dec. 1892, *F.C. Lehmann 7049* (K); Hda. Daucay, al. 500 m, 23 Apr. 1994, *X. Cornejo & C. Bonifaz 2534* (GUAY, K); epiphytic in cloud forest 10 km west of Piñas, alt. 900 m, 19 July 1979, *C.H. Dodson, H.H. Morgan & R. Perry 8467* (SEL), C. Luer illustr. 4816; same area, collected by A. Andreetta, flowered in cultivation at Colomborquídeas in Colombia, 20 Apr., 1988, *C. Luer 13274* (MO). PANAMA: **Chiriquí**: Fortuna, alt. 1150 m, 24 Oct. 1985, *G. McPherson 7317* (MO); Boquete, north of Los Planes de Hornito, alt 1100 m, 17 June 1982, *S. Knapp & M. Vodicka 5506* (MO). **Colón**: Portobelo, Río Gatun, alt. 1600-1800 m, 13 Mar. 1980, *T. Antonio 3844* (MO). **Panamá**: Altos de Pacora road, alt. 650 m, 4 Mar. 1976, *C. Luer, J. Luer, P. Taylor & R.L. Dressler 1014* (SEL). COSTA RICA: Without locality, alt. 3,500 ft., 1867, *Endres 64* (W, labeled *M. hystrix* by Kränzlin). **Alajuela**: between San Ramón and Balsa, alt. 1200 m, 29 Aug. 1979, *W.D. Stevens 13805* (MO); San Ramón, alt. 1350-1500 m, 18 Feb. 1983, *A. Carvajal 325a* (MO); between San Ramón and Santa Clara, alt. 1000-1200 m, 27 July 1983, *R. Escobar & Perez 3093* (SEL); Río Peñas Blancas, alt. 1100 m, 19 Nov. 1988, *E. Bello 545* (CR, MO). **Heredia**: La Hondura, 26 July 1952, *C.H. Lankester 1601* (K, SEL);

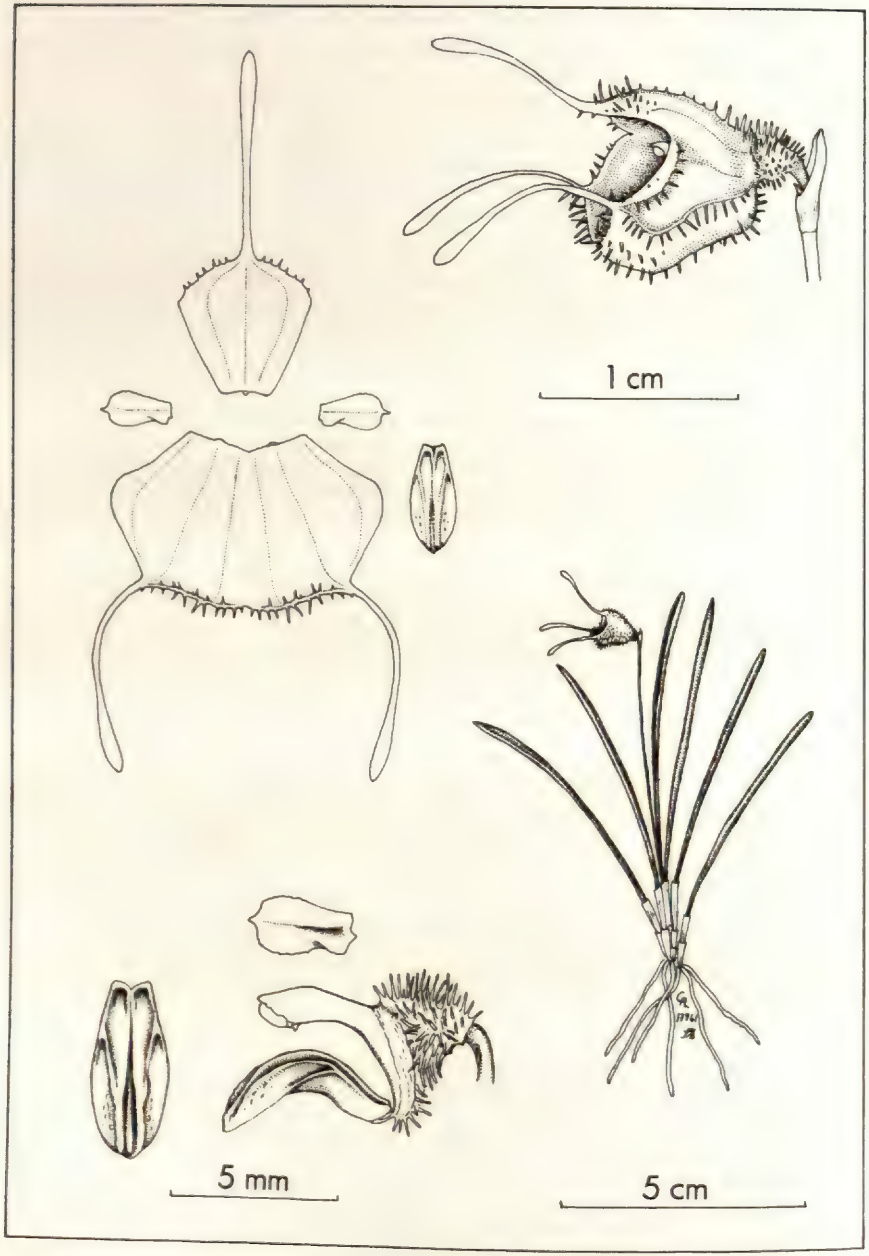


Plate 226. Masdevallia erinacea
(Costa Rica)

La Palma, alt. 1550 m, 9 June 1960, *Cl. Horich s.n.* (holotype of *M. horrida*: AMES; isotypes: K, MO, UC); El Alto de La Palma, alt. 1550 m, cultivated at UC, 18 Sept. 1862, *Cl. Horich s.n.* (AMES, K, MO, UC); La Honda, July 1952, *C.H. Lankester 1601* (K); San Geronimo, alt. 1800 m, 18 Sept. 1979, *C. Luer, J. Luer, K. Walter & L. Glicenstein 4221A* (SEL). **Puntarenas**: Monteverde, Valle Peñas Blancas, alt. 900 m, 1 Aug. 1988, *E. Bello 220* (CR, MO). Without locality, *C.H. Lankester K332* (K). **San José**: La Montura, alt. 1050 m, 1 July 1980, *C. Todzia 1472* (CR).

This grotesque, little species is relatively frequent in Central America and adjacent Colombia, but only one disjunct area has been discovered in southwestern Ecuador. Paintings at Kew by Lehmann bear the names "M. antennifera," and "M. torulosa," and an early collection by Lehmann at G (Geneva) bears the intended name "M. heteromorpha." A collection by Endres was annotated "M. hystrix" by Kränzlin. The leaves of plants from Costa Rica are narrowly semiterete, less than two millimeters wide, while the leaves of plants from Panama and the Andes are narrowly obovate, up to five millimeters wide, but the flowers from the two extremes are indistinguishable, or some distinguishable only by trivialities.

Masdevallia erinacea is easily recognized by the proportionately large flower usually borne a little distance above the leaves. A second or third flower slowly follows successively. The rose-mottled, subglobular, gaping, sepaline cup is supported by an echinate ovary. The sepals are spiculate externally along the veins. The tails, about as long as the blades, are clavate, possibly adapted as osmophores. The petals are rounded at the apex, sometimes apiculate, with the margins distantly or microscopically denticulate; and an obtuse, marginal callus is present at the base. The lip is oblong, minutely verrucose, with a pair of low, longitudinal calli on the middle third, from the margins below the middle, converging above the middle, and with recesses at the base.

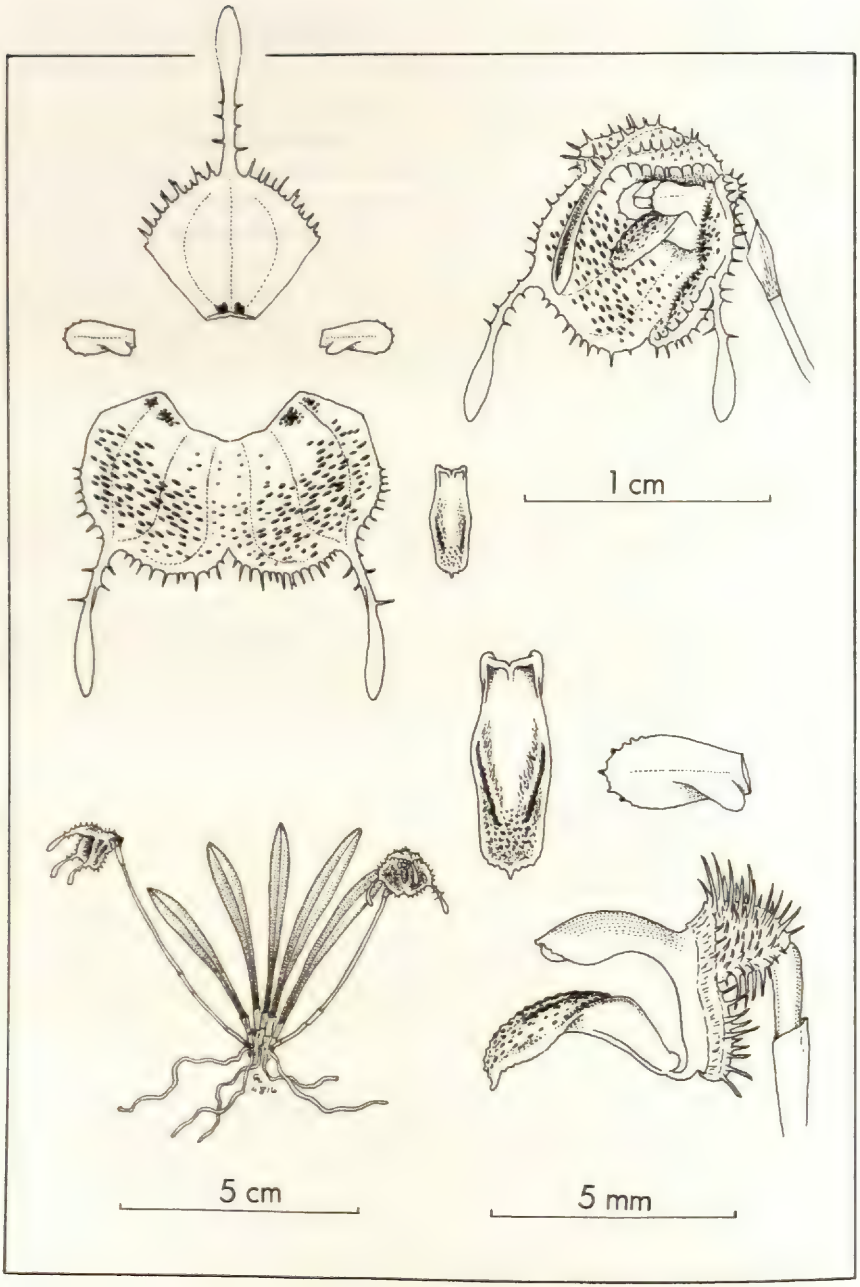


Plate 227. Masdevallia erinacea
(Ecuador)

Masdevallia expers Luer & Andreetta, Lindleyana 3: 29, 1988.

Ety: From the Latin *expers*, "without," or "free from," referring to the absence of sepaline tails.

Plant very small, epiphytic, densely caespitose; roots slender. Ramicauls slender, erect, blackish, 2-3 mm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical, subacute, 15-25 mm long including the petiole 3-5 mm long, 5-6 mm wide, the base narrowly cuneate into the petiole. **Inflorescence** a solitary flower borne successively in a few-flowered, congested raceme by a slender, suberect, peduncle, 2-3.5 cm long, with a bract near the base, from low on the ramicaul; floral bracts 2 mm long; pedicel 2 mm long; ovary 1.5 mm long, the ribs thickened and undulate; **sepals** dull white, densely suffused and spotted with dark purple, glabrous, elliptical, obtuse without forming a tail, the dorsal sepal 7.5 mm long, 3 mm wide, connate to the lateral sepals for 2.5 mm to form a short, broad, sepaline cup, the lateral sepals oblique,7.5 mm long, 4 mm wide, connate to each other for 3 mm, forming a mentum with the column-foot; **petals** white, suffused with purple, oblong-obovate, obtuse, 2 mm long, 1.5 mm wide, with a broad, obtuse callus on the mid-labellar margin; **lip** yellow-white, spotted with dark purple, thick, oblong, 3 mm long, 1.5 mm wide, the disc with a pair of low, longitudinal calli below the middle, the apex rounded, the base subtruncate, hinged beneath; **column** yellow, semiterete, 2.5 mm long, the foot thick, suffused with dark purple, 2 mm long, with an incurved extension.

ECUADOR: **Morona-Santiago**: Cordillera de Cutucú, alt. 1500 m, collected by Padre Andreetta and Mario Portillo, and cultivated by Padre Angel Andreetta at Paute, flowered 8 Feb. 1987, *C. Luer 12735* (Holotype: MO).

This little species is apparently endemic in southeastern Ecuador where it was first discovered by Padre Andreetta. It is distinguished by the tiny, densely caespitose habit; slender peduncles that slightly exceed the leaves in length, and produce a few flowers successively in a congested inraceme; totally tailless, purple-spotted sepals; broad petals obtusely callous on the labellar margin; and a thick, oblong, spotted lip. A very similar species, *M. collantesii*, occurs in neighboring Peru.

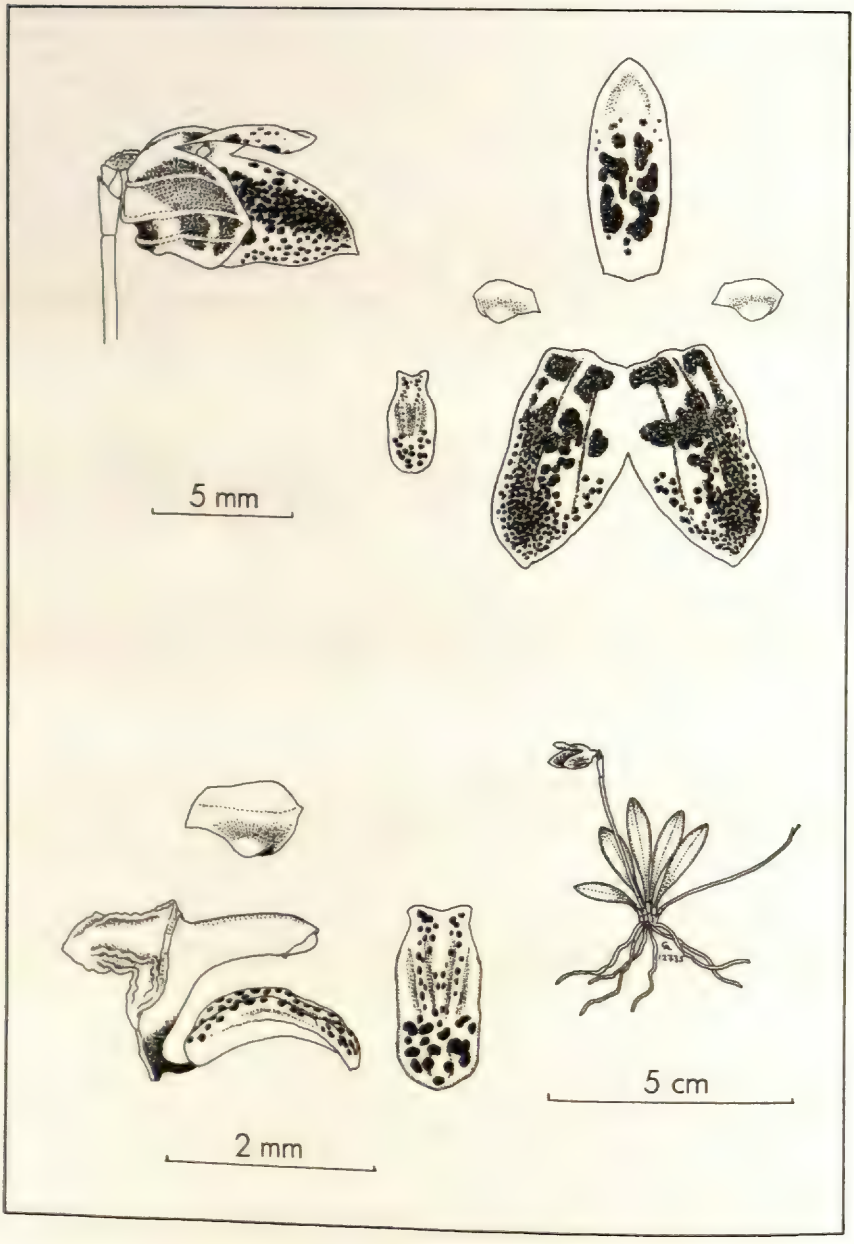


Plate 228. Masdevallia expers

Masdevallia henniae Luer & Dalström, Lindleyana 9: 108, 1994.

Ety.: Named for Dr. Henni Wanntorp, director of the Stockholm Botanical Garden, co-discoverer of this species.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 3-5 mm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 4-5 cm long including the 1-2 cm long petiole, the blade narrowly elliptical, 8-9 mm wide, with the apex subacute, the base cuneate into the slender petiole. **Inflorescence** a loose, successively flowered raceme borne by a slender, prostrate peduncle up to 11 cm long, from low on the ramicaul; floral bract tubular, 5-8 mm long; pedicel 7-12 mm long; ovary costate, 2 mm long; **sepals** dark yellow with numerous purple specks and with a large, purple spot near the base, glabrous externally, minutely pubescent within, mostly below the middle, the dorsal sepal ovate, acute, 16 mm long, 5.5 mm wide, connate to the lateral sepals for 3 mm to form a short, broad, cylindrical tube, the lateral sepals ovate, oblique, acute, 16 mm long, 5.5 mm wide, connate 3 mm, forming a deep, rounded mentum with the column-foot; **petals** yellow, purple toward the base, obliquely ovate, narrowly obtuse at the apex, 8 mm long, 2.5 mm wide below the middle across the slightly thickened, dilated margin, 1 mm wide above the middle; **lip** yellow, purple toward the base, diffusely cellular-papillose, thickly cartilaginous, ovate, 11 mm long, 5.5 mm wide, the apex broadly rounded, the disc shallowly sulcate, the base decurved below broadly rounded, basal angles, hinged on the end; **column** green with purple margins, narrowly semiterete, 7.5 mm long, the foot 4.5 mm long with a short extension.

ECUADOR: **Zamora-Chinchipe**: Cordillera del Condor, south of Paquisha, on trees along Río Nangaritza, alt. 950 m, 11 Feb. 1993, *S. Dalström, T. Höijer & H. Wanntorp 1884* (Holotype: MO), C. Luer illustr. 16587.

This small species recently discovered in southern Ecuador is characterized by a small, caespitose habit with narrow, petiolate leaves. The inflorescence is a lax, successively flowered raceme of comparatively large flowers borne by a slender, elongate, prostrate peduncle. The sepals are ovate and tailless; the labellar margins of the petals are obtusely swollen above the base; and the lip is large, obtusely ovate and diffusely papillose.

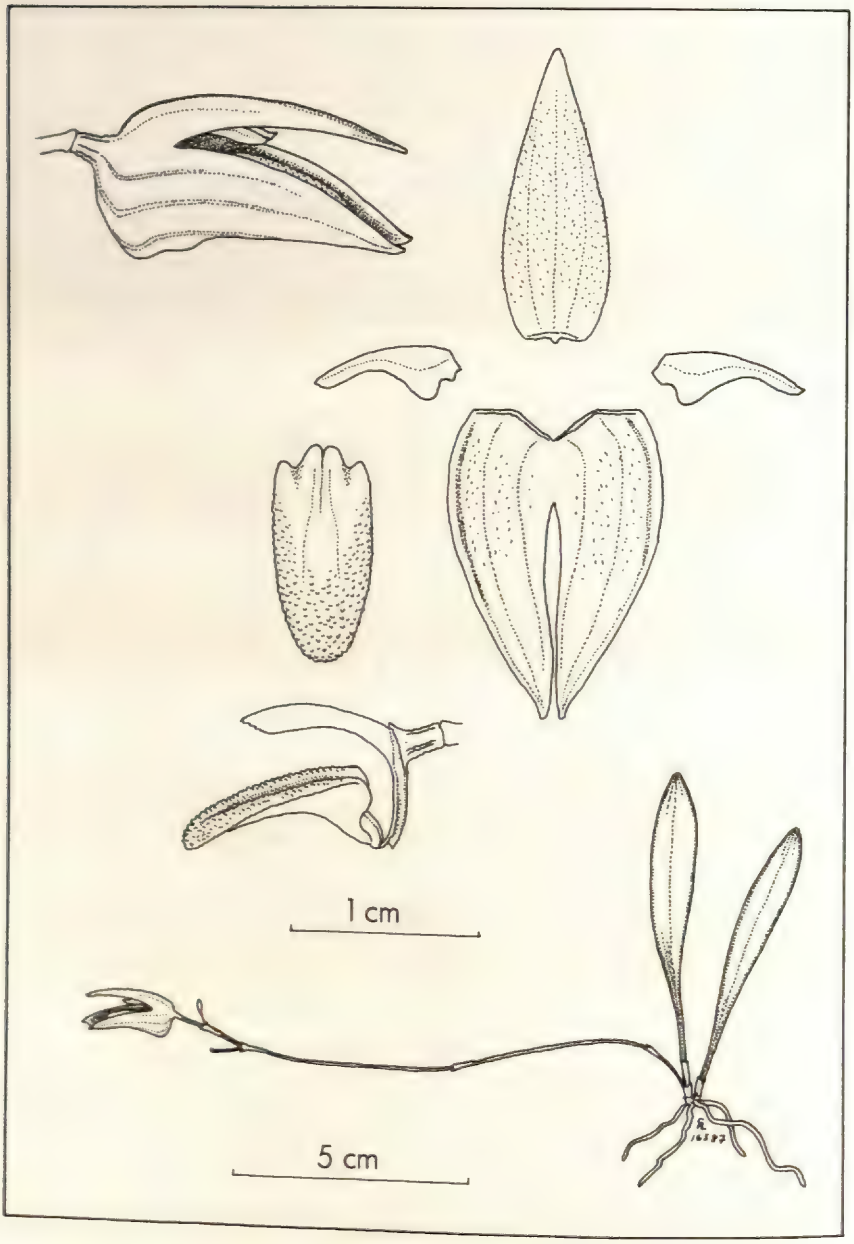


Plate 229. Masdevallia henniae

Masdevallia hoeijeri Luer & Hirtz, Lindleyana 1: 184, 1986.

Ety.: Named in honor of Thomas Höijer of the Botanical Garden of Stockholm, Sweden, who first discovered this species.

Plant very small, epiphytic, densely caespitose; roots slender. Ramicauls slender, suberect, 2-6 mm long, enclosed by 2-3 thin, tubular sheaths, **Leaf** erect, coriaceous, narrowly obovate, subacute, 7-12 mm long, 2-3 mm wide, gradually narrowed below to the subpetiolate base. **Inflorescence** a solitary flower borne by a slender, weak, suberect, peduncle, 10-15 mm long, with a bract near the base, from low on the ramicaul; floral bract thin, infundibular, 2 mm long; pedicel 2 mm long; ovary 2 mm long, 3-crested, the crests overlapping the bases of the sepals; **sepals** brown with darker veins, glabrous, microscopically ciliate on the free margins, the dorsal sepal obovate, 9 mm long, 5.5 mm wide, connate to the lateral sepals for 4.5 mm to form a broad, cylindrical sepaline tube, the free portion triangular with the obtuse apex contracted into a terete, yellow tail 2.5 mm long, the lateral sepals oblique, obovate, 11 mm long, 5 mm wide, connate to each other for 4 mm above the deep mentum formed with the column-foot, the obtuse, free portions contracted into terete, yellow tails 3.5 mm long; **petals** translucent white with a purple midvein, oblong, the apex truncate, subapiculate, 4.25 mm long, 1.5 mm wide, the labellar margin callous; **lip** red-brown, thick, oblong, 5.5 mm long, 2.25 mm wide, the disc shallowly sulcate, the apex rounded, minutely verrucose and denticulate, the base subcordate, shallowly cleft above, hinged beneath; **column** green, semiterete, without teeth, 4 mm long, the foot 3 mm long, with an incurved extension.

ECUADOR: **Morona-Santiago**: epiphytic in cloud forest, Cordillera del Condor, east of Chuchumbletza, alt. 1500 m, 18 Feb. 1986, *C. Luer, J. Luer, A. Embree, A. Hirtz & W. Flores 11905* (Holotype: MO); north of Gualaquiza, alt. 1600 m, Feb. 1984, *S. Dalström & T. Höijer 879* (MO). **Zamora-Chinchipe**: east of the pass between Loja and Zamora, alt. 2600 m, collected by W. Teague, 22 May 1988, cultivated in San Francisco, CA, 6 July 1989, *C. Luer 14389* (MO).
COLOMBIA: **Antioquia**: Urrao, alt. 1600-1800 m, collected by E. Valencia, Apr. 1989, cultivated at Colomborquídeas, *R. Escobar 4064* (MO).

This little species was first discovered in southeastern Ecuador by the Swedish team of Dalström and Höijer in 1984. The following year it was discovered in the Cordillera del Condor. Plants form tiny, dense tufts of leaves, usually on the smaller branches of short trees in the wet forest. The flowers are large for the size of the plant. The short, brownish sepaline tube is inflated, and the short, yellow tails are thick. *Masdevallia hoeijeri* is related to *M. erinacea* and *M. pygmaea*, both characterized by their crested ovary and long column-foot.

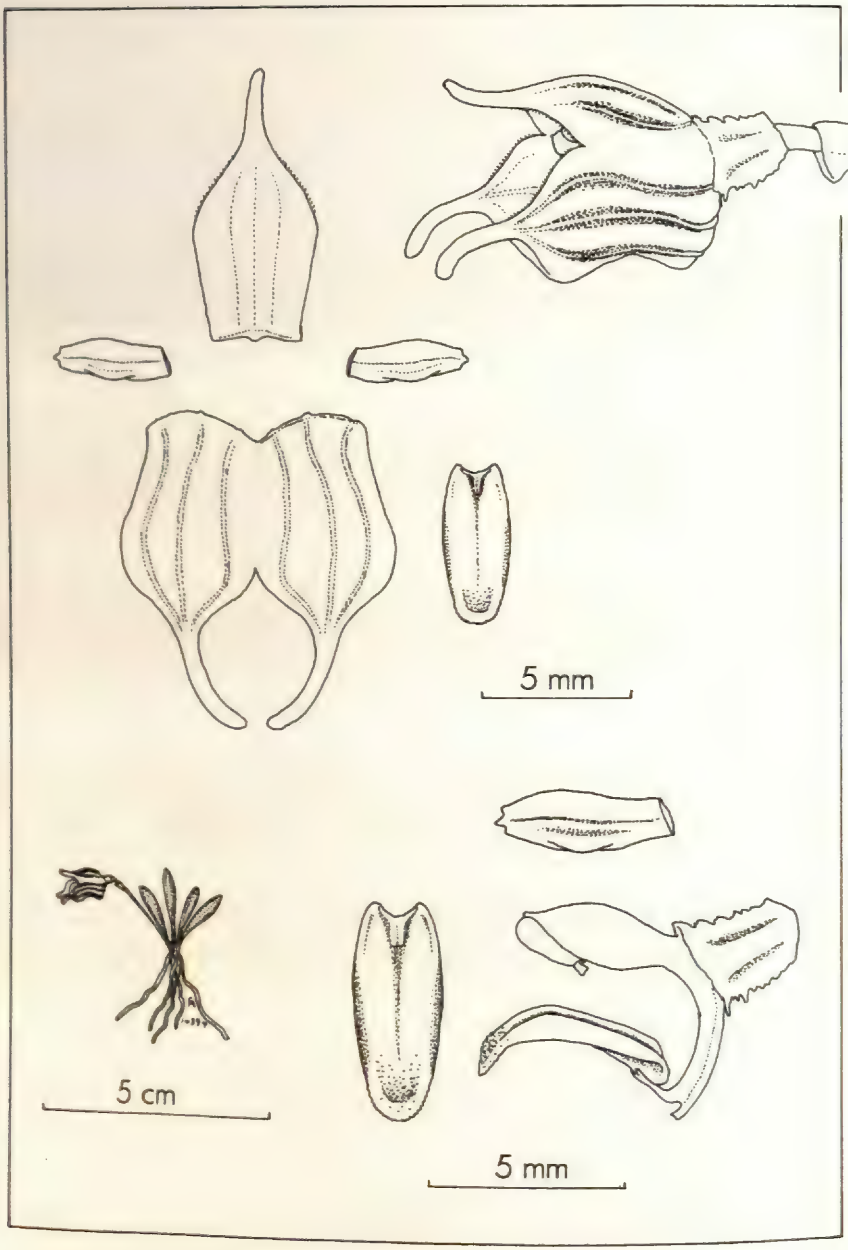


Plate 230. Masdevallia hoeijeri

Masdevallia indecora Luer & Escobar, Novon 1: 170, 1991.

Ety. From the Latin *indecorus*, "not beautiful," in allusion to the flower.

Plant small, epiphytic, caespitose, more or less ascending; roots slender. Ramicauls erect, slender, 7-10 mm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical to obovate, acute to subacute, 20-30 mm long, 3-4 mm wide, gradually narrowed below into the subpetiolate base. **Inflorescence** a single, more or less downward-facing flower borne by a slender, erect peduncle 30-35 mm long, with a bract above the base, from low on the ramicaul; floral bract oblique, 3.5 mm long; pedicel 2 mm long, with an equally long filament; ovary 1.5 mm long, carinate, the carinae minimally denticulate; **sepals** yellow, suffused with red-brown, glabrous, the dorsal sepal ovate, concave, 9.5 mm long, 4.5 mm wide, connate to the lateral sepals for 3 mm to form a broad, cylindrical tube, the apex acute, the lateral sepals ovate, oblique, 10 mm long, 4 mm wide, connate 3.5 mm to create a prominent secondary mentum and a deep primary mentum with the column-foot, the free portions triangular, acute; **petals** white, membranous, obliquely oblong, 3.5 mm long, 0.8 mm wide, the apex acute, the labellar margin very slightly thickened, the upper margin obtusely angled near the middle; **lip** yellow-brown, oblong, 4.5 mm long, 2 mm wide, the apex broadly rounded, the disc channeled between a pair of longitudinal carinae, the base subtruncate, hinged beneath; **column** semiterete, 3.5 mm long, the foot 3 mm long, with a short, incurved extension.

COLOMBIA: **Antioquia**: Munic. of Jardín, epiphytic in forest near Cinfuentes, alt. 2600 m, collected by M. Zapata, flowered in cultivation at Colomborquídeas, 24 Mar. 1991, *C. Luer 15265* (Holotype, JAUM; Isotype: MO).

This little species is apparently rare and endemic in the Central Cordillera of Colombia where it is known by only a single collection. It is most closely allied to the frequent and widely distributed *M. anachaeta*. In habit it is larger than *M. anachaeta*, but with a similar, small, nodding flower. Instead of spiculate, the ovaries are simply crested. Instead of caudate, the sepals are acute without forming tails. The characteristic tooth at the base of the petals of *M. anachaeta* is lacking. The lip of both species is bicarinate above the middle.

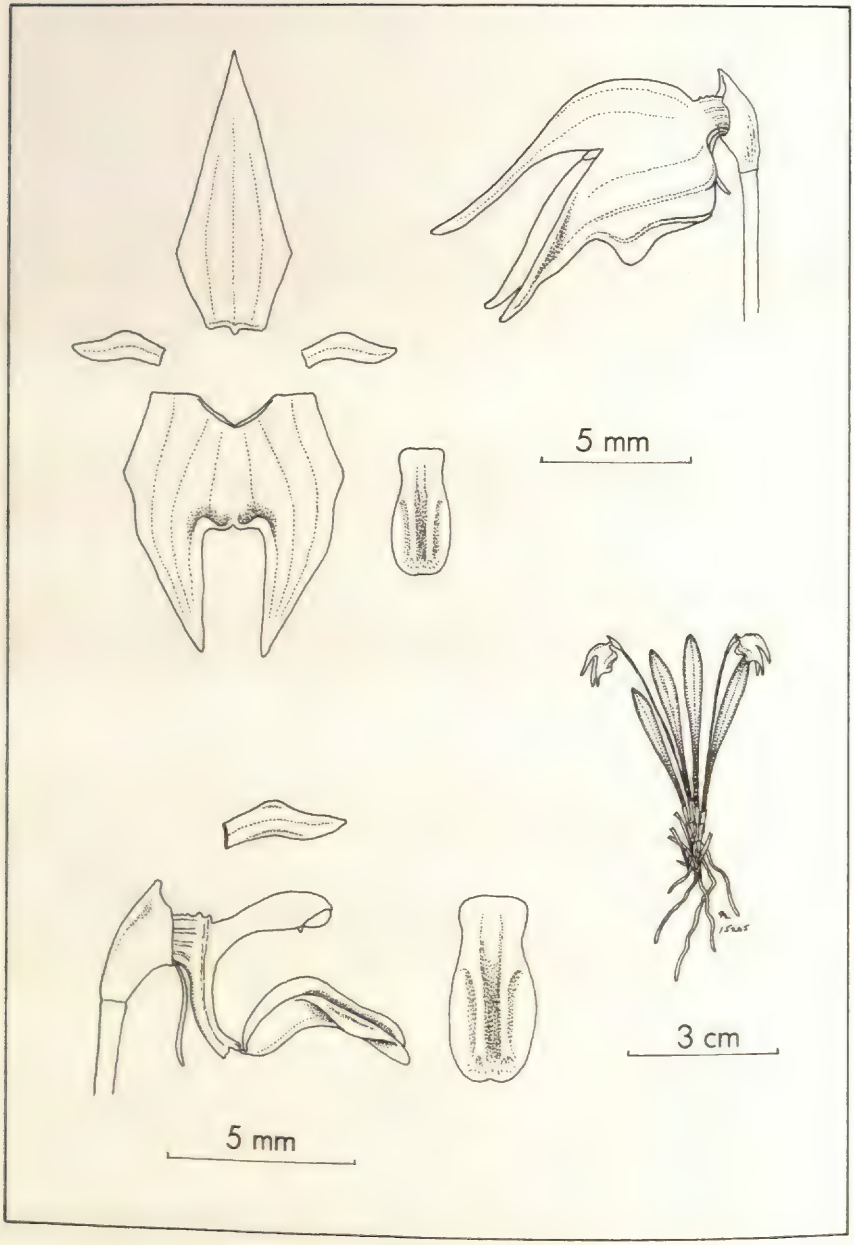


Plate 231. Masdevallia indecora

Masdevallia manchinazae Luer & Andreetta, Lindleyana 3: 201, 1988.

Ety.: Named for the area of Manchinaza where this species occurs. Manchinaza from the Shuari *manchinaza,* meaning "cricket river."

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, blackish, 5-10 mm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 2.5-5 cm long including the petiole 1-2.5 cm long, the blade elliptical, acute, 6-9 mm wide, cuneate below into the blackish petiole. **Inflorescence** a small, solitary (? always) flower borne by a slender, reclining to suberect peduncle 3-7.5 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular 4-5 mm long; pedicel 4-6 mm long; ovary 3-4 mm long; **sepals** translucent light green, finely veined in purple, the primary veins carinate externally, glabrous, the dorsal sepal ovate, the entire length 40 mm, nearly 5 mm wide, 3-veined, connate to the lateral sepals for 3 mm to form a short, cylindrical, sepaline tube, the free portion narrowly, triangular, the acute apex contracted into a filamentous, light green tail, the lateral sepals narrowly elliptical, oblique, the entire length 45 mm, connate 14 mm to form a lamina 7 mm wide, each lateral sepal 5-veined, the acute free portions contracted into filamentous, light green tails; **petals** translucent white with a purple midvein, ovate, acute, oblique, subunguiculate, 3 mm long, 1 mm wide, the labellar margin with a small, obtuse angle between the middle and basal thirds; **lip** pale green, obovate, arcuate above the base, 5 mm long, 1.5 mm wide, the disc longitudinally bicarinate, with light brown stripes, the base subcordate, hinged on the end; **column** white, semiterete, 2.5 mm long, the foot 2 mm long, with a short, incurved extension.

ECUADOR: **Morona-Santiago**: Cordillera del Condor, epiphytic in forest east of Chuchumbletza, alt. 1750 m, 21 May 1988, *C. Luer, A. Hirtz, W. Flores, A. Andreetta & W. Teague 13544* (Holotype: MO).

This little species is found infrequently in the forests of the Cordillera del Condor within a few meters of the disputed Peruvian border. It is closely allied to *M. amaluzae, M. paquishae*, and *M. sanchezii*, but it is readily distinguished from them by the small flower with proportionately large, elongate, deeply connate lateral sepals with long, filamentous tails; and an obtuse, obovate, bicarinate lip.

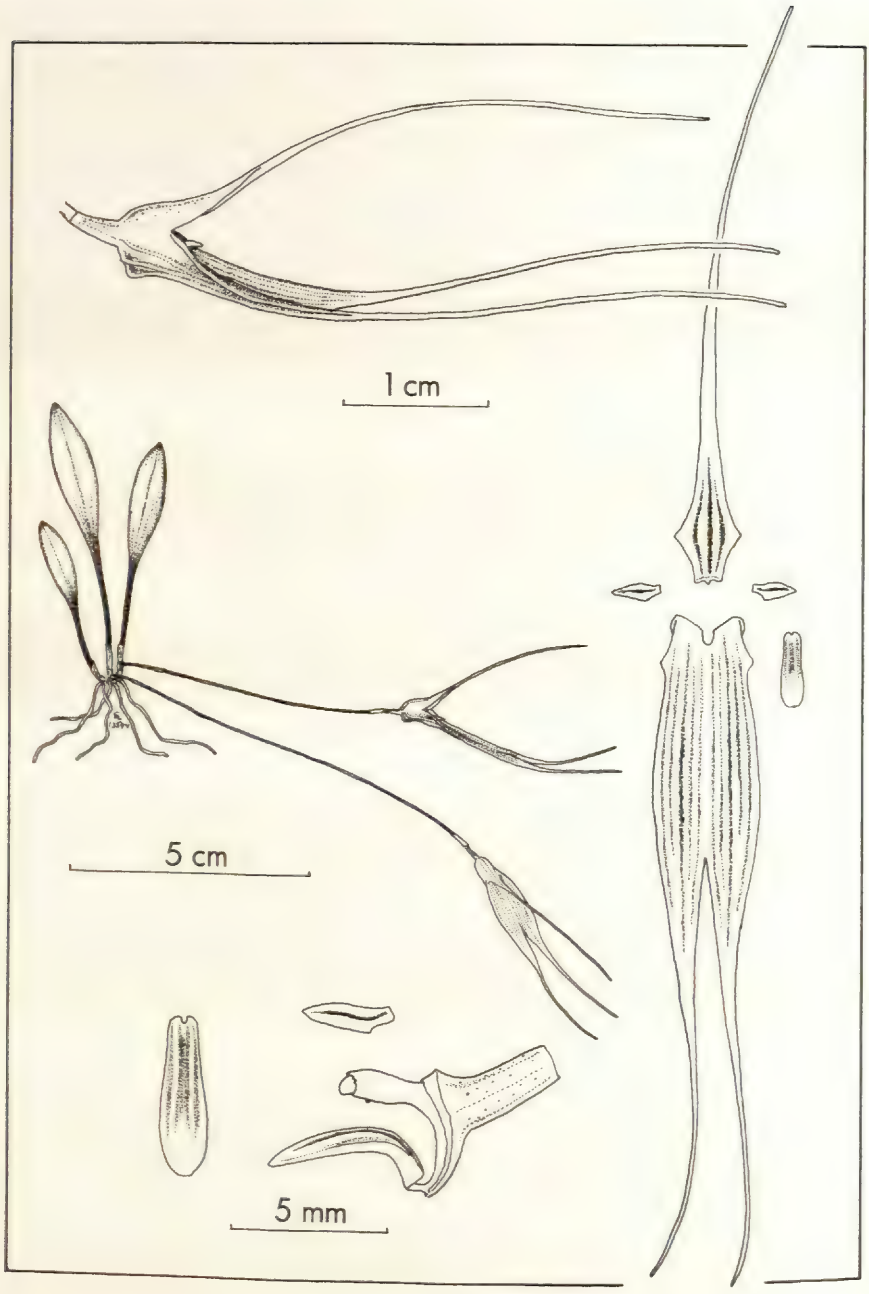


Plate 232. Masdevallia manchinazae

Masdevallia mataxa Königer & H.Mend., Die Orchidee 44: 178, 1993.

Ety.: From the Greek *mataxa*, "a silk worm cocoon," referring to the pubescent synsepal.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 1-2 cm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 5-9 cm long including the petiole 1.5-3 cm long, the blade elliptical, acute, 1-1.7 cm wide, the base cuneate into the slender petiole. **Inflorescence** a successively few-flowered, congested raceme borne by a slender, more or less horizontal peduncle 6-7 cm long, with a bract below the middle, from low on the ramicaul; floral bract tubular, 5-6 mm long; pedicel 11 mm long; ovary 4 mm long, low-costate; **sepals** white with 3 dark purple stripes along the veins, subcarinate externally, the dorsal sepal elliptical, ca. 18 mm long, 8 mm wide, connate to the lateral sepals 9 mm to form a broad tube, the free portion triangular with the acute apex attenuated into a slender, white tail 35 mm long, the lateral sepals white, yellow-orange at the base, connate 22 mm into an elliptical, concave, bifurcated, 6-veined lamina ca. 28 mm long, 19 mm wide, with the margins involute, deeply channeled in the center, each half with a pair of longitudinal, convex rows, sulcate between, pubescent on outer thirds, the base forming a mentum with the column-foot, the apices acute, nearly approximate, contracted into slender white tails ca. 25 mm long; **petals** white with a purple midvein, elliptical, acute, 6.5 mm long, 2 mm wide, with a low callus on the labellar half above the base; **lip** white, suffused with purple toward the base, elliptical, microscopically serrulate, with the apex broadly rounded, arcuate above the base, concave in basal third between erect, rounded margins, 9 mm long, 3.75 mm wide, the disc with a pair of low, longitudinal calli, minutely streaked with purple, the base broadly flattened, hinged beneath; **column** green with purple margins, semiterete, 5 mm long, the foot thick, equally long with a thick, incurved extension.

ECUADOR: **Zamora-Chinchipe:** Numbala, La Table, alt. 2200 m, collected by Hartman Mendoza, Dec. 1990, cultivated in Munich, Germany by *W. Königer WK-25* (Holotype: M; clonotypes K, QCA, Herb. H. Königer); same locality. collected by D. D'Alessandro, Dec. 1991, cultivated by J & L Orchids, Easton, CT, 10 May 1995, *C. Luer 17499* (MO).

This species is apparently endemic in southeastern Ecuador. It is related to the equally large-flowered *M. patula* of this section. Vegetatively similar with acute, petiolate leaves, the large flower is also borne on a more or less horizontal peduncle. The concave synsepal is white and thinly striped and dotted with purple. The interior is longitudinally furrowed and with long, villous, white hairs. The petals are acute and the lip is oblong with erect, rounded margins on the basal quarter.

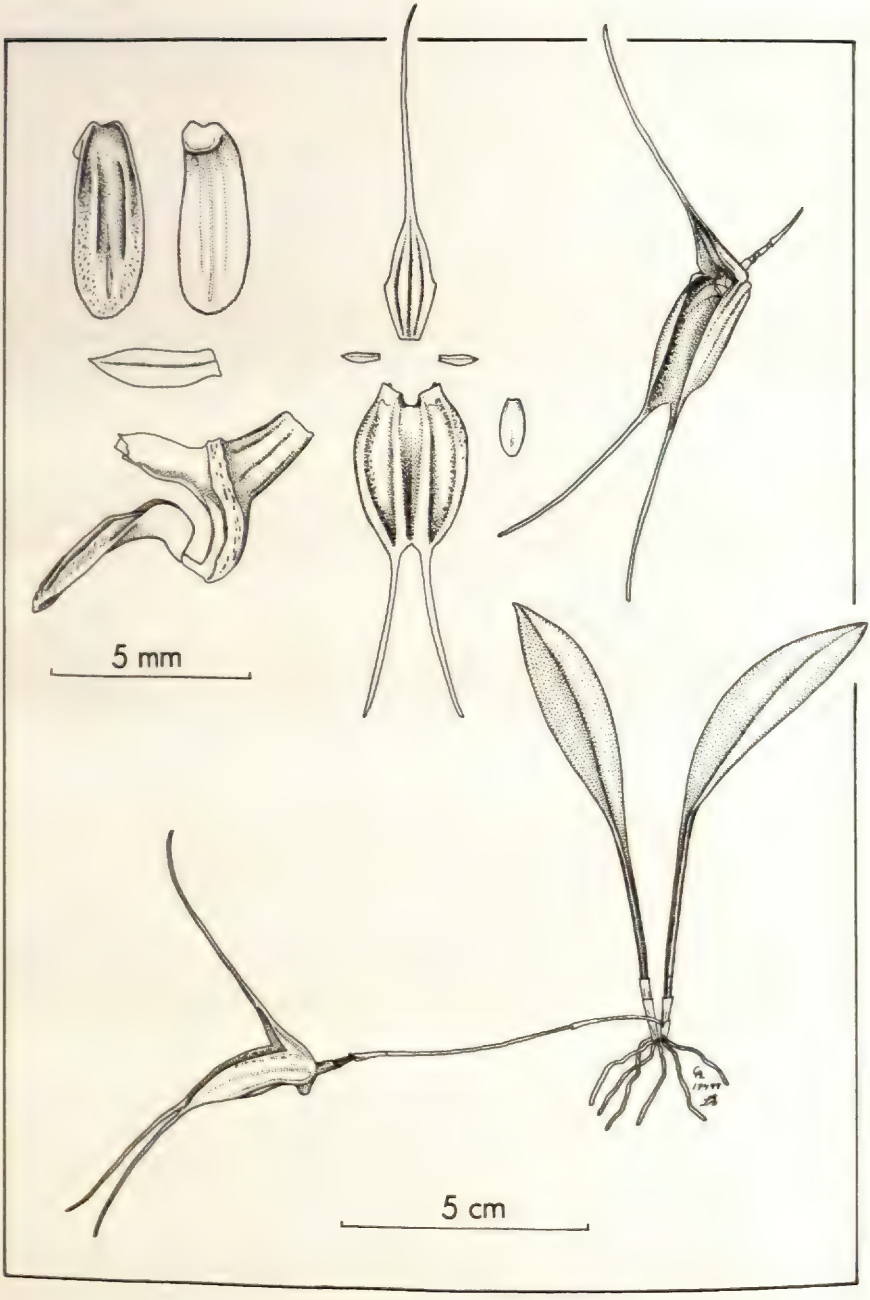


Plate 233. Masdevallia mataxa

Masdevallia mentosa Luer, Phytologia 39: 212, 1978.

Ety.: From the Latin *mentosus*, "with a chin," referring to the prominent mentum of the flower.

Syn.: *Masdevallia glossacles* Luer, Lindleyana 4: 111, 1989.

Ety.: From the Greek *glossacles*, "a great tongue," referring to the large, ligulate labellum.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 3-8 mm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, coriaceous, 2-5 cm long including a petiole 0.5-1 cm long, the blade narrowly elliptical, subacute, 0.7-0.9 cm wide, cuneate below into the petiole. **Inflorescence** a succession of single flowers borne in a congested raceme up to 7 mm long, by a slender, more or less erect peduncle 4.5-7 cm long, more or less slightly triquetrous toward the apex, with a bract above the base, from the base of a ramicaul; floral bracts tubular, 4-5 mm long; pedicel 4-5 mm long; ovary 2-3.5 mm long, slightly costate; **sepals** fleshy, yellow-green with a few markings of red or purple especially on the margins, sparsely short-pubescent within below the middle, the dorsal sepal ovate, 11-12 mm long, 4.5-6 mm wide, connate to the lateral sepals for 2-3 mm to form a broad, gaping, cylindrical, sepaline tube, the apex thickened, triangular, acute, the lateral sepals ovate, oblique, 11-12 mm long, 5-6.5 mm wide, connate 3 mm, connate to the column-foot for 4.5 mm to form a deep mentum, the apices triangular, acute; **petals** yellow-green, narrowly suboblong, oblique, 6.5 mm long, 1-2.5 mm wide, the apex oblique, acute, the labellar half with a longitudinal callus ending in an obtuse, rounded, descending process between the middle and lower thirds; **lip** yellow-green, marked with red, oblong-ligulate, 8.5 mm long, 4 mm wide, the disc shallowly channeled between a pair of low calli below the middle, the apex rounded, the base narrowed and deflexed into a 2 mm long, channeled claw, hinged at the end; **column** semiterete, winged above the middle, 4.5 mm long with the foot 4.5 mm long.

ECUADOR: **Pastaza**: epiphytic in rain forest 20 km east of Puyo, alt. ca. 900 m, 3 Aug. 1977, *C. Luer, J. Luer & J. Brenner 1814* (Holotype: SEL}. Without collection data, obtained from Roberto Estrada of Guayaquil, Ecuador, by Cordelia Head in November 1988, cultivated at J & L Orchids in Easton, CT, 289-313, Feb. 1989, *C. Luer 14386* (holotype of *M. glossacles*: MO).

This uncommon, little species, apparently endemic in lowland, eastern Ecuador, is characterized by a caespitose habit with elliptical leaves exceeded by a suberect, slender peduncle. Toward the raceme the peduncle becomes slightly angled on cross section, a finding occasionally seen in species not noted for a triquetrous peduncle. For this reason, this species was originally placed in a unispecific section (Luer, 1986) now deemed inseparable from subgenus *Pygmaeia*. The raceme is successively flowered, the surfaces of the ovaries are low-costate, and the sepals are triangular and tailless. Related to *M. henniae*, the petals are similarly swollen above the base and the elliptical lip is also proportionately large.

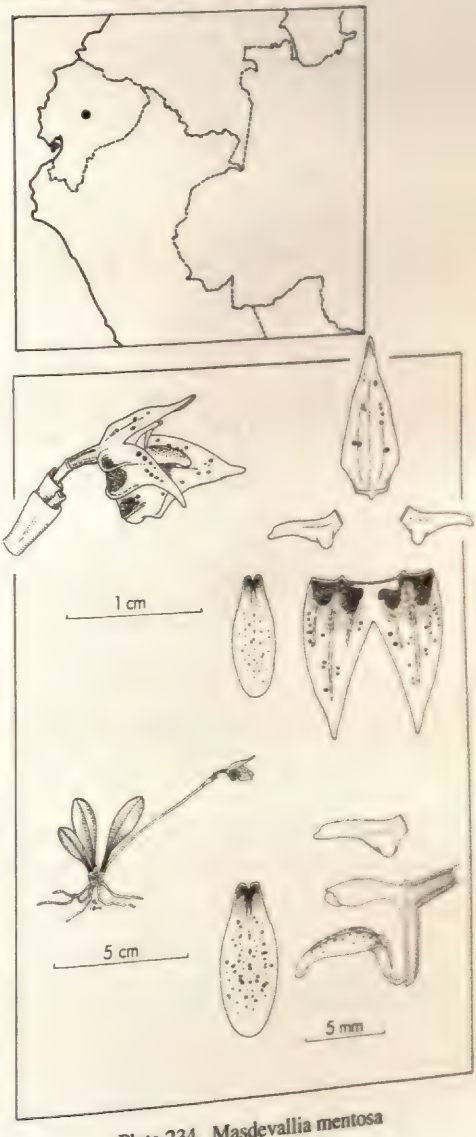


Plate 234. Masdevallia mentosa

Plate 235. Masdevallia mentosa

Masdevallia merinoi Luer & Portilla, Monogr. Syst. Bot. Missouri Bot. Gard. 76: 151, 1999.

Ety.: Named for Gilberto Merino of Gualaceo, Ecuador, who collected this species.

Plant small, epiphytic, caespitose; roots slender; ramicauls slender, erect, 0.8-1 cm long, enclosed by 2 loose, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 4-5.5 cm long including the petiole 1.5 cm long, the blade elliptical, acute, 1-1.2 cm wide, the base narrowly cuneate into the petiole. **Inflorescence** a successive, few-flowered raceme, borne by a slender, suberect to horizontal peduncle 7-8 mm long, with a bract at the base and another on the lower quarter, from low on the ramicaul; floral bract tubular, 5-7 mm long; pedicel 7 mm long; ovary 4 mm long; **sepals** dull white, striped with red-purple, glabrous, the dorsal sepal oblong, 15 mm long, 7 mm wide, connate to the lateral sepals for 9 mm to form a cylindrical tube, the apex acute, acuminate into a slender, white tail 4 cm long, the entire length 5.5 cm, the lateral sepals broadly subovate, oblique, 6 cm long, connate 12 mm into a lamina 13 mm wide, the apices acute, attenuated into slender tails; **petals** white, elliptical, acute, 6.5 mm long, 1.8 mm wide, callous on the lower half on the middle third; **lip** suffused with red-purple, oblong, 8.5 mm long, 3 mm wide, the apex rounded, minutely erose, disc longitudinally sulcate between a pair of low calli, the base decurved, subcordate, hinged beneath; **column** white, semiterete, 4.5 mm long, the foot 4 mm long including the incurved extension.

ECUADOR: **Zamora-Chinchipe**: above Valladolid, alt. 1600 m, collected June 1998 by Gilberto Merino, cultivated at Ecuagenera, Gualaceo, Ecuador, Oct. 1999, *J. Portilla 14* (Holotype: MO), C. Luer illustr. 19254.

Among the species of this section, this species is most closely allied to *M. manchinazae*, but differs in the larger flower with the sepaline tube thrice as long, and the lateral sepals are free a short distance beyond the tube. The lateral sepals of *M. manchinazae* are deeply connate far beyond the tube. Except for being larger, the petals and lip are basically similar. The lip of *M. merinoi* is minutely verrucose with the verrucae low and elongate, and with the apex round and minutely erose. The lip of *M. manchinazae* is smooth and entire.

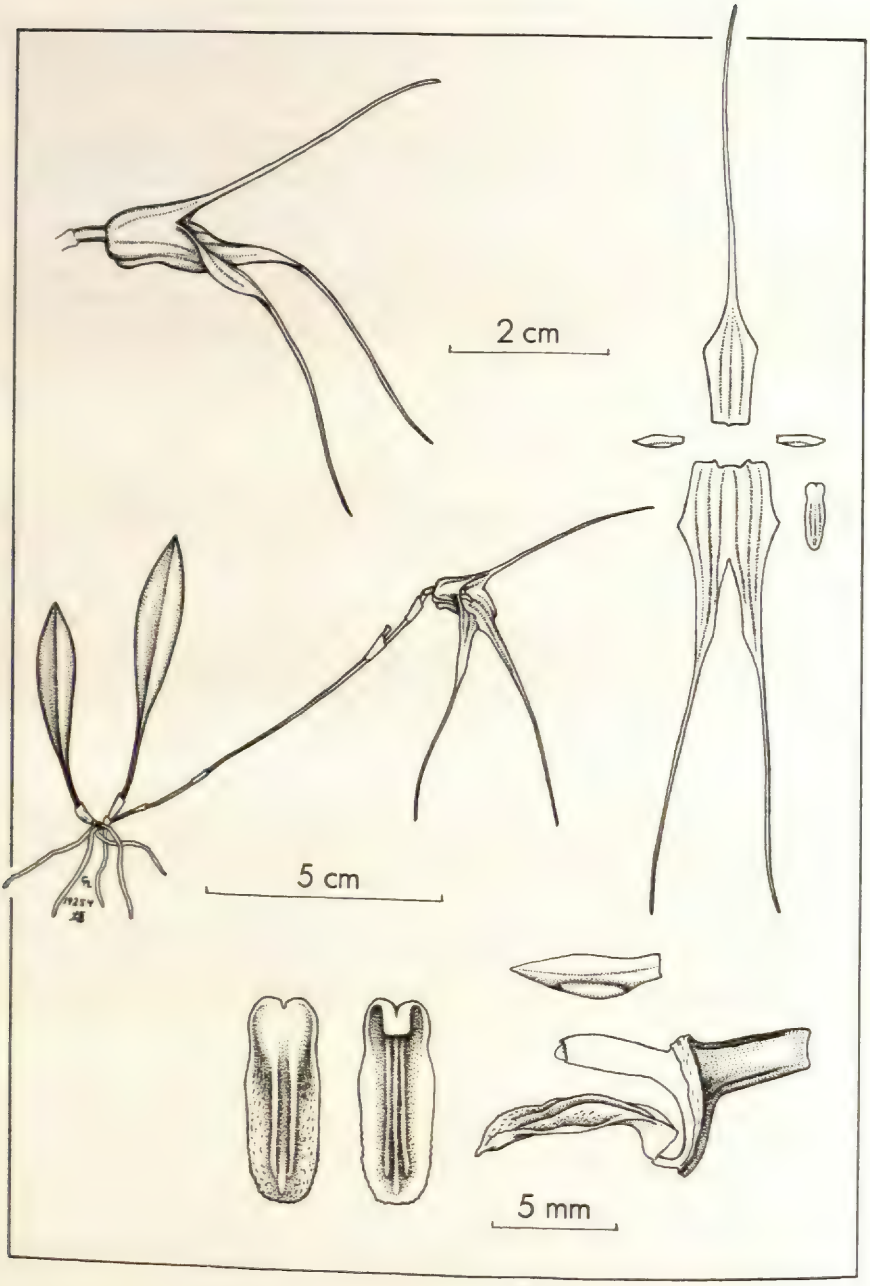


Plate 236. Masdevallia merinoi

Masdevallia naranjapatae Luer, Selbyana 5: 375, 1978.

Ety.: Named for the community of Naranjapata where the species occurs.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, 1-1.5 cm long, concealed by 2-3 short, tubular sheaths. **Leaf** erect to suberect, coriaceous, narrowly obovate, subacute, 5-12 cm long, 1.2-1.8 cm wide, gradually narrowed below to the slender, indistinctly petiolate base. Inflorescence a successively few-flowered, congested raceme borne by a slender horizontal to descending peduncle 5-8 cm long, from low on the ramicaul; floral bract tubular, close, 4 mm long; pedicel light green, speckled with purple, 11 mm long; ovary yellow, suffused and dotted with purple, 5 mm long; **sepals** yellow, lightly spotted with purple, microscopically pubescent above the middle, the dorsal sepal obovate, 10 mm long, 5 mm wide, connate to the lateral sepals for 5 mm to form a cylindrical tube, the free portion triangular, the apex acuminate into a filiform, reflexed tail 3-4 cm long, the lateral sepals connate 20 mm into a narrowly ovate, bifid lamina, covered with minute purple verrucae, microscopically pubescent, the apices attenuated into slender, recurving tails, the total length 4-5 cm, 1 cm wide across the expanded synsepal; **petals** white, strongly marked with purple on the labellar half, variably marked with purple on the opposite half, oblong, 6 mm long, 2.5 mm wide, the apex oblique, acute, minutely bifid, obtusely angled on the upper margin above the narrow, unguiculate base, with a longitudinal callus along the labellar margin ending in an acute, retrorse tooth above the base; **lip** white, speckled with purple, oblong-subpandurate, 5.5 mm long, 2 mm: wide, the apex subacute, the base subcordate, hinged to the column-foot; **column** white, marked with purple, semiterete, the foot 2 mm long with a minute, incurved extension.

ECUADOR: **Chimborazo**: epiphytic near Naranjapata, Km 100 along the railroad from Guayaquil to Quito, alt. 550 m, June 1977, collected by Walter Teague, cultivated in San Francisco, CA, 23 Sept. 1978, *C. Luer 3448* (Holotype: SEL); same collection, cultivated at Colomborquídeas, Colombia, 20 Apr. 1988, *C. Luer 13275* (MO); same area, alt. 700 m, 10 Feb. 1958, *C. H. Dodson 125* (MO); same area, epiphytic in coffee trees, alt. 556 m, cultivated by P. Hutchinson, specimen prepared 23 Nov. 1960, *C.H. Dodson & G. Frymire 92* (AMES, JEPS).

This species is related to the variable *M. zahlbruckneri*, which is distributed from Central America to Bolivia, but *M. naranjapatae* is endemic in a small, remote area of lowland western Ecuador. Here it grows in old orange trees with *Dracula mopsus* (Lehm. & Kraenzl.) Luer.

Masdevallia naranjapatae is characterized by the small, caespitose habit and a long, slender, more or less horizontal, successively flowered peduncle. From a short sepaline tube the long-tailed dorsal sepal recurves while the laterals are deeply connate into a narrowly ovate synsepal that splits into equally long, slender, recurving tails. The petals are oblong with an acute apex and with a purple longitudinal callus along the labellar margin ending in an acute, retrorse process above the unguiculate base. The lip is oblong and subacute with a pair of longitudinal calli.

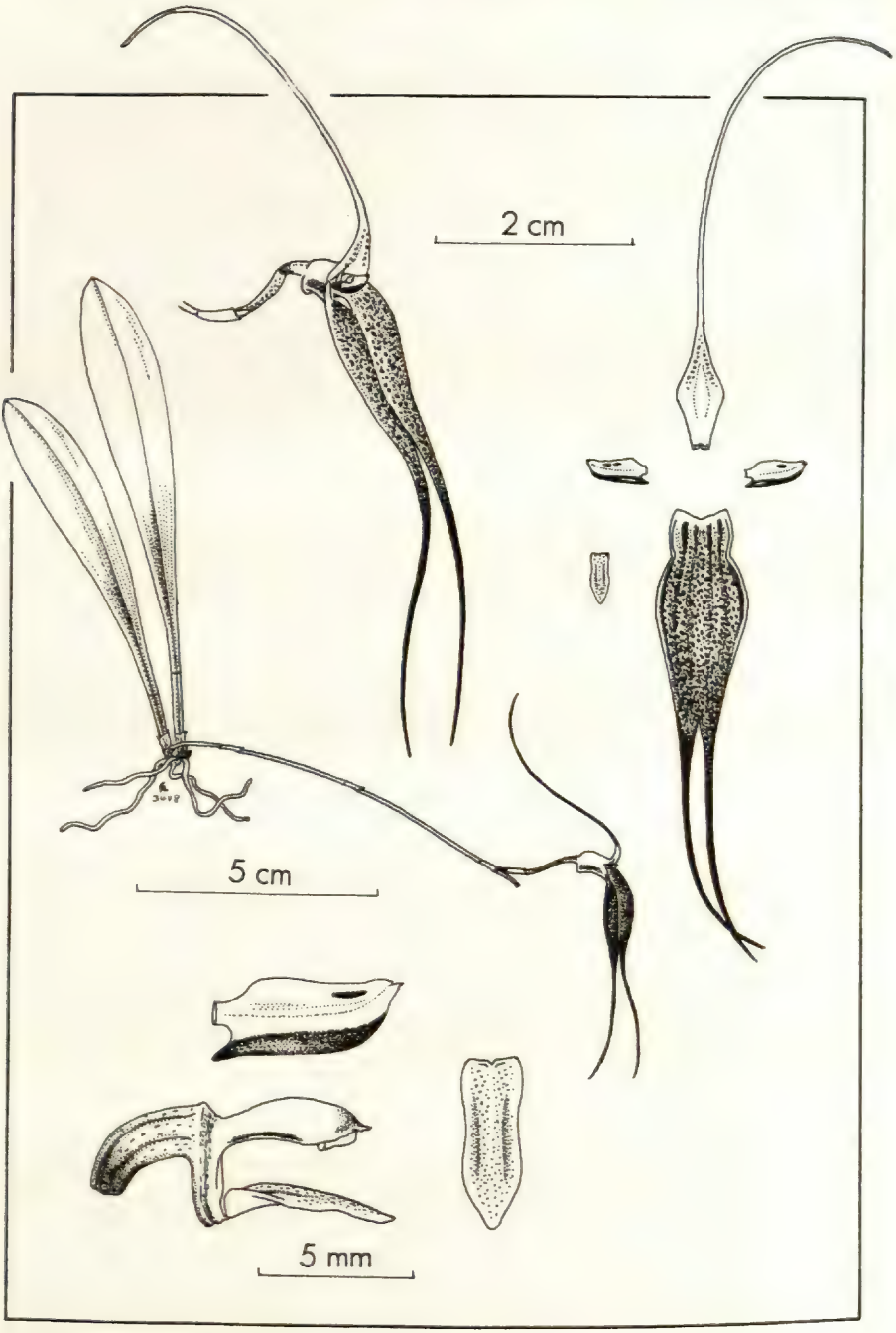


Plate 237. Masdevallia naranjapatae

Masdevallia paquishae Luer & Hirtz, Lindleyana 3: 204, 1988.

Ety.: Named for the area of Paquisha where this species occurs. Paquisha from the Shuari *pakkintza*, meaning "peccary creek."

Syn.: *Masdevallia trivenia* Königer, Arcula 7: 205, 1997.

Ety.: From an invented word referring to the Latin *trivenosus*, "three-veined," in allusion to the prominently three-veined sepals.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, blackish, 5-10 mm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 4-7 cm long including the petiole 1.5-2.5 cm long, the blade narrowly elliptical, acute, 0.8-1 cm wide, cuneate below into the blackish petiole. **Inflorescence** a small, solitary (? always) flower borne by a slender, reclining to suberect peduncle 3-6 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular 3-4 mm long; pedicel 4-5 mm long; ovary purple, 3-4 mm long, lightly verrucose along the ribs; **sepals** white to greenish white, striped in purple, the primary veins carinate externally, glabrous, the dorsal sepal ovate, ca. 10 mm long, 4 mm wide, 3-veined, connate to the lateral sepals for 4-5 mm to form a short, cylindrical, sepaline tube, the free portions triangular, the acute apex contracted into a slender, white tail 12-13 mm long, the entire length 35 mm, the lateral sepals ovate, oblique, ca. 13 mm long, connate 6-8 mm to form a lamina 8 mm wide expanded, each lateral sepal 5-(6-)striped with 3 prominent, purple veins and stripes of lighter purple between, the free portions triangular, acute, contracted into slender, white tails 12-15 mm long; **petals** translucent white with a purple midvein, ovate, acute, oblique, subunguiculate, 3.75-5 mm long, 1-1.2 mm wide, the labellar margin lightly callous with a small, obtuse angle between the middle and basal thirds; **lip** purple, elliptical, acute, 5.5 mm long, 2 mm wide, the disc with 3 darker purple, longitudinal veins, the base subcordate, hinged beneath; **column** white with thin, purple margins, semiterete, 3 mm long, the foot 2 mm long including a short, incurved extension.

ECUADOR: **Morona-Santiago**: Cordillera del Condor, epiphytic in forest east of Chuchumbletza, alt. 1750 m, 21 May 1988, *C. Luer, A. Hirtz, W. Flores, A. Andreetta & W. Teague 13573* (Holotype: MO; Isotype: K). **Zamora-Chinchipe**: Cordillera del Condor, epiphytic in forest east of Los Encuentros, alt. 1500 m, 20 May 1988, collected by B. Malo, *C. Luer 13513* (MO).

PERU: **Junín**: Chanchamayo valley, collector unknown, exported by M. Arias, 1993, cultivated in Munich, Germany, by *W. Königer WK-74* (holotype of *M. trivenia*: M; clonotypes: K, UNALM, USM, Herb. H. Königer).

This little species occurs in southeastern Ecuador and northern Peru. A photograph by Walter Teague and identified as *M. chiquindensis* was published in the article *The Masdevallias of Kilometer X* by Hawley and Teague in the *American Orchid Society Bulletin* in 1976. It was first collected by José Strobel in August 1954, and a plant cultivated by Henry Scardefield was awarded an AM/AOS as *Masdevallia chiquindensis* 'Spyhill'.

Masdevallia paquishae is similar to *M. sanchezii*, but the petals of the latter are subulate. It is also similar to *M. amaluzae*, but the lateral sepals of the latter are yellow with incomplete, brown stripes, and connate a proportionately greater distance beyond the sepaline tube. The lateral sepals on *M. paquishae* are prominently striped with dark purple and with stripes of lighter purple between.

The Peruvian collection is slightly larger vegetatively and florally than the Ecuadorian collections.

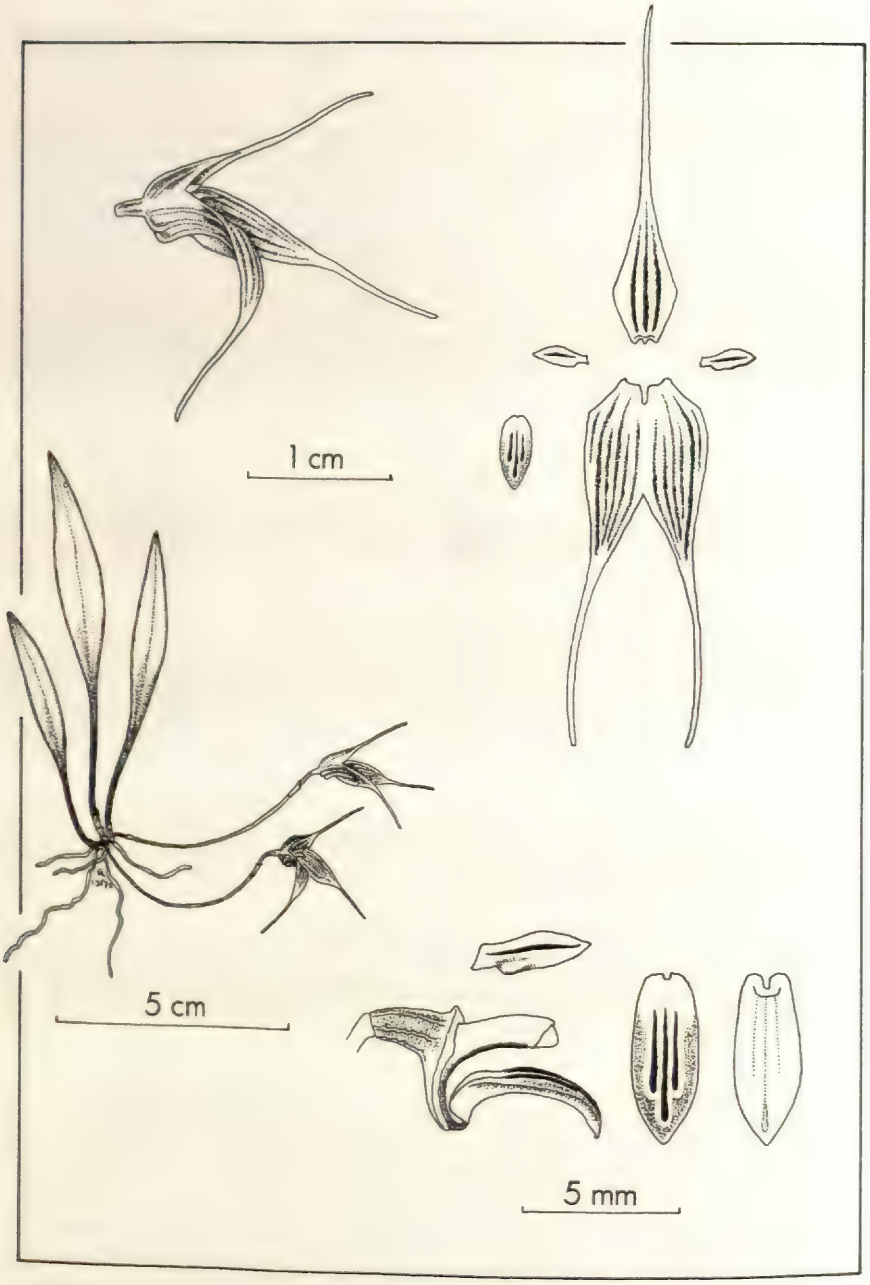


Plate 238. Masdevallia paquishae

Masdevallia patula Luer & Malo, Phytologia 39: 220,1978.

Ety.: From the Latin *patulus*, "outspread," referring to the large, widespread synsepal.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 10-13 mm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 5-9 cm long including the petiole 2-3 cm long, the blade elliptical, acute, 1-1.6 cm wide, the base cuneate into the slender petiole. **Inflorescence** a few-flowered, congested raceme of successive flowers borne by a slender, more or less horizontal peduncle 10-15 cm long, with a bract below the middle, from low in the ramicaul; floral bract tubular, 6 mm long; pedicel 8 mm long; ovary 4 mm long, subverrucose with low ribs; **sepals** yellowish with red-brown to red-purple stripes along the veins, subcarinate externally, the dorsal sepal ovate, 60-70 mm long, 8 mm wide, connate to the lateral sepals for 7 mm to create a cylindrical tube, the free portion narrowly triangular with the acute apex attenuated into the tail, the lateral sepals connate 25-32 mm into an oblong, convex, bifurcated, 6-veined lamina ca. 35 mm long, 15-18 mm wide, the acute apices contracted into slender green tails ca. 25 mm long; **petals** white with a purple midvein, elliptical-subfalcate, acute, 6 mm long, 1.5 mm wide, both halves lowly callous with an obtuse angle on the lower margin near the lower third; **lip** rose-red, obovate, arcuate, 7.5 mm long, 4 mm wide, the apex obtuse, the disc with a pair of low, longitudinal calli, the base subcordate with broadly rounded, elevated margins, hinged on the end; **column** green with purple margins, semiterete, 4 mm long, the foot equally long with a long, incurved extension.

ECUADOR: **Morona-Santiago**: epiphytic in cloud forest east of Cuenca, alt. 2200 m, April 1975, collected by B. Malo, cultivated at Tarqui near Cuenca, 9 July 1977, *C. Luer 1656* (SEL); epiphytic in cloud forest east of Paute, 1978, *A. Andreetta 60* (SEL); along new road between Macas and Guamote, alt. 1550 m, collected and cultivated by P. Jesup in Bristol, CT, 5 May 1990, *C. Luer 14739A* (MO). **Zamora-Chinchipe**: epiphytic along Río Jamboe, collected by B. Malo, cultivated at Tarqui, 25 May 1988, *C. Luer 13689* (MO); same area, along new road to Zamora, alt. 1400 m, Feb. 1995, *A. Hirtz 6184* (MO).

This species is uncommon and local in southeastern Ecuador. The flower is large for the size of the plant, and is borne successively on a slender, horizontal, sometimes descending peduncle. Most conspicuous is the huge, yellowish, purplish-striped synsepal and the long, white, filiform tails. The acute petals and obovate lip are similar to those of *M. carmenensis*.

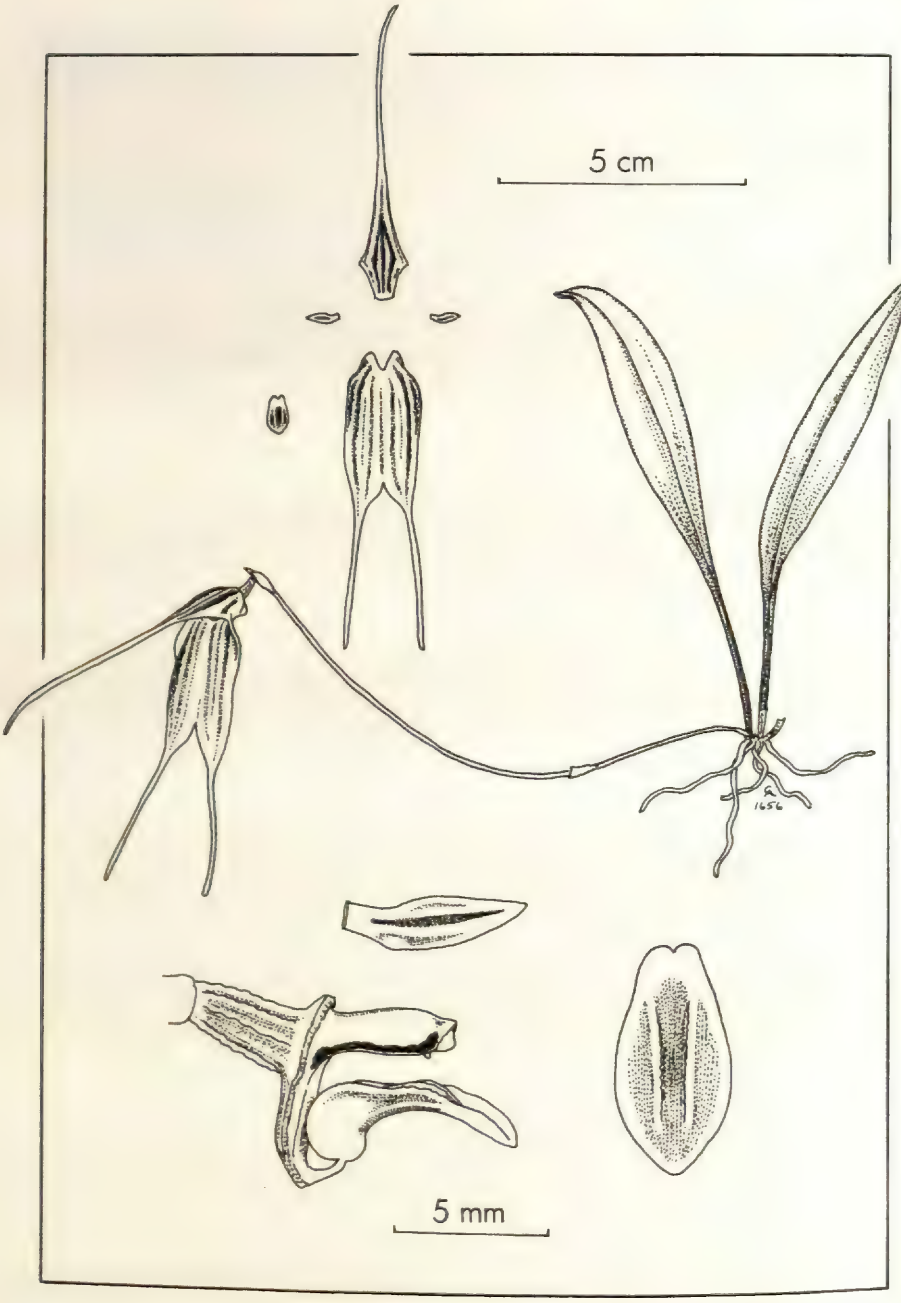


Plate 239. Masdevallia patula

Masdevallia plantaginea (Poepp. & Endl.) Cogn., Fl. Bras. 3(4): 336, 1896.

Bas.: *Specklinia plantaginea* Poepp. & Endl., Nov. Gen. Sp. Pl. 1: 51, t. 89A, 1835.

Ety.: From the Latin *plantagineus*, "like a plantain," in allusion to similarities to a species of *Plantago* of the family Plantaginaceae.

Syn.: *Pleurothallis plantaginea* (Poepp. & Endl.) Lindl. Bot. Reg. 27: Misc. 82, 1842.

Syn.: *Humboldtia plantaginea* (Poepp. & Endl.) Kuntze, Rev. Gen. Pl. 668, 1891.

Syn.: *Masdevallia capillaris* Luer, Selbyana 7: 104, 1982.

Ety.: From the Latin *capillaris*, "hairlike," referring to the thin, elongated peduncle.

Plant very small, epiphytic, caespitose; roots slender. Ramicauls slender, blackish, 4-5 mm long, enclosed by 2 thin, ribbed sheaths. **Leaf** erect, coriaceous, narrowly elliptical, subacute, 18-50 mm long, 4-6 mm wide, gradually narrowed below into a slender, subpetiolate base. **Inflorescence** a gradually elongating, more or less reclining, loose, successively few-flowered raceme up to 15 cm long including the very slender peduncle, from low on the ramicaul; floral bract 1.5-3 mm long; pedicel 3-10 mm long; ovary 2 mm long, with 3 pairs of crests, the upper more or less overlapping the base of the dorsal sepal; **sepals** thickened, glabrous, delicately carinate, purple with yellow apices, connate to each other for 3 mm to form a short, cylindrical tube, the dorsal sepal oblong, the free portion antrorse, narrowly oblong, obtuse, the entire length 12.5 mm, the width 3 mm, the lateral sepals subfalcate, 12.5 mm long, 2.5 mm wide, the free portions similar to that of the dorsal sepal; **petals** yellow, subfalcate, 3.25 mm long, 1.5 mm wide, dilated on the labellar margin between the middle and lower thirds, the subtruncate apex shortly apiculate; **lip** purple, obovate-oblong, arcuate, 3.75 mm long expanded, 1.3 mm wide, the apex obtuse, glandular-cellular, microscopically erose, thickened below the middle to the truncate base, hinged beneath, the disc with a pair of low, longitudinal calli; **column** yellow, semiterete, 3 mm long, the slender foot 2 mm long, with a thin, incurved extension.

PERU: **Huánuco**: near Cuchero, Aug. 1829, *E. Poeppig s.n.* (Holotype: W; Isotype: K), C. Luer illustr. 16983; Cuchero, 1830, *E. Poeppig 1514* (W). ECUADOR: **Zamora-Chinchipe**: epiphytic in cloud forest below Tapala, alt. 1400 m, near Valladolid, 20 Feb. 1982, *D. D'Alessandro 163* (holotype of *M. capillaris*: SEL), C. Luer illustr. 8074; epiphytic in cloud forest between Loja and Zamora, alt. 1500 m, 3 Nov. 1982, *C. Luer, R. Escobar & D. D'Alessandro 8272* (SEL); in trees along Río Jamboe south of Zamora, alt. 1250 m, 22 Jan. 1992, *C. Luer, J. Luer, P. Jesup, A. Jesup & A. Hirtz 16111* (MO); Cordillera del Condor, Pachicutza, collected by A. Hirtz, cultivated in Quito, 10 Jan. 1992, *C. Luer 15545* (MO); Cordillera del Condor, Napintza, alt. 1000 m, June 1991, *A. Hirtz 5548* (MO).

This little species was first collected in 1829 by Poeppig during his sojourn in Peru. His published description and illustration are so vague that no relationship with other species could be determined. Lindley transferred it from *Specklinia* to *Pleurothallis* in 1842, and Cogniaux transferred it to *Masdevallia* in 1896. Superficially, the type-specimen appears to be a small, successively flowered *Pleurothallis* that resembles *P. grobyi*. A hydrated flower proves the species to be the same as *M. capillaris* which was described from southeastern Ecuador where it has been occasionally found.

The tiny tuft of narrow leaves is indistinguishable from that of a multitude of other pleurothallids. The long, slender, more or less horizontal peduncle bears in slow succession a few, distant, fleshy flowers with broad, tailless sepals. The petals are obtusely callous on the labellar margin, and the lip is elliptical with a pair of low, longitudinal calli.

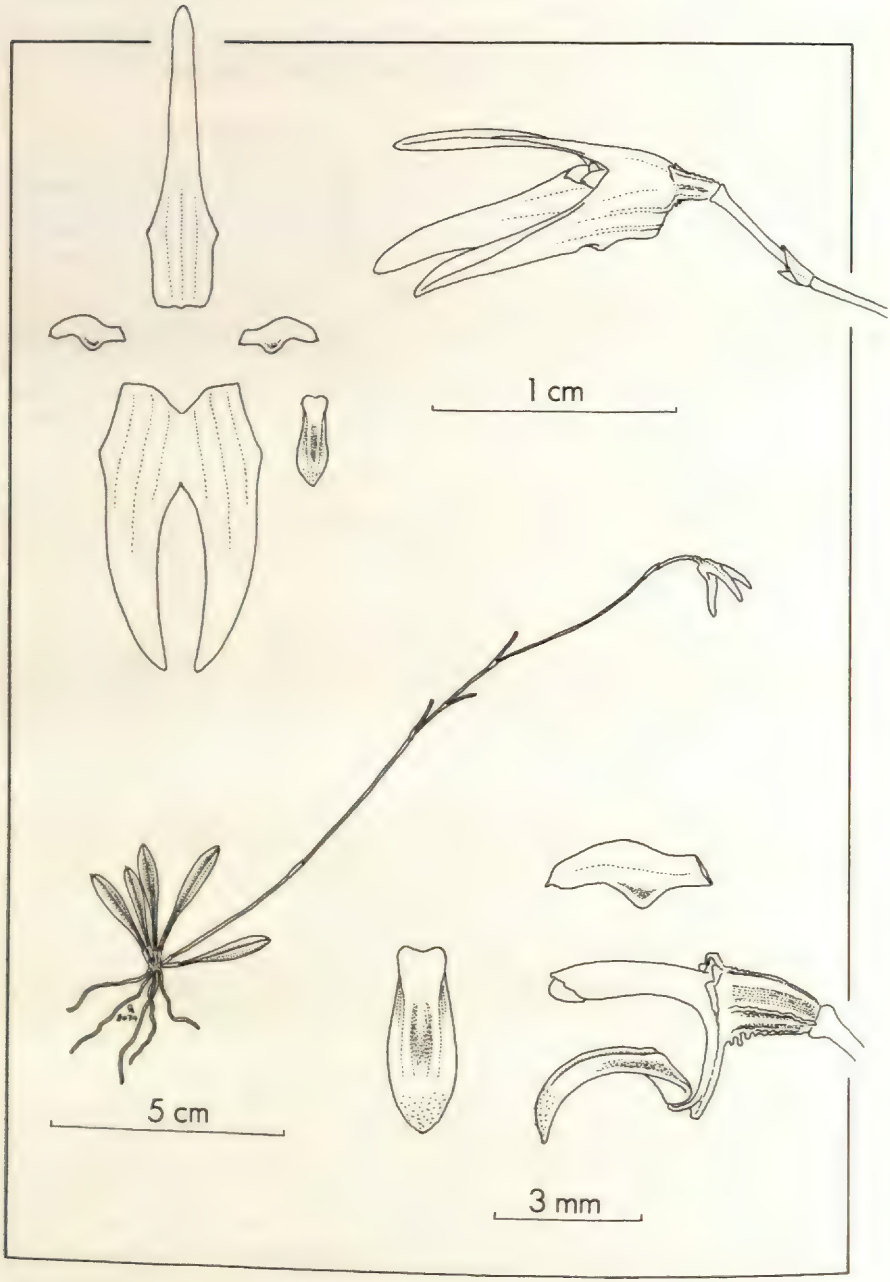


Plate 240. Masdevallia plantaginea

Masdevallia pterygiophora Luer & Escobar, Lindleyana 3: 50, 1988.

Ety.: From the Greek *pterygiophoros*, "bearing a little wing," referring to the winged ovary.

Plant very small, epiphytic, caespitose; roots slender. Ramicauls slender, 3-4 mm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, coriaceous, narrowly obovate-linear, subacute to obtuse, 15-25 mm long, 2-3 mm wide, gradually narrowed below to the base. **Inflorescence** a single flower borne by a slender, weak, suberect peduncle 15-25 mm long, with a bract near the base, from low on the ramicaul; floral bract thin, tubular, 3 mm long, enclosing the pedicel and part of the ovary; pedicel 2 mm long; ovary 2 mm long, 6-winged, the wings overlapping the bases of the sepals; **sepals** light yellow or light green, veined in red-purple, glabrous, the dorsal sepal ovate, 7 mm long, 4 mm wide, connate to the lateral sepals for 3 mm to form a broad, cylindrical tube, the free portion triangular, the apex obtuse, thickened, minutely apiculate, the lateral sepals ovate, oblique, 7.5 mm long, 4 mm wide, connate 1.5 mm above the deep mentum formed with the column-foot, the free portions triangular with the apices obtuse and thickened; **petals** translucent yellow-green with a purple midvein, oblong, obtuse, 4.5 mm long, 1.25 mm wide, the labellar margin slightly thickened; **lip** light green, suffused with purple, elliptical-oblong, 4.5 mm long, 2 mm wide, the apex thickened, rounded, verrucose, the base truncate, shallowly cleft above, hinged beneath; **column** green, marked with purple, bidentate, semiterete, 3.5 mm long, the foot 2.5 mm long with a short, incurved extension.

COLOMBIA: **Antioquia**: Vereda, El Víaho, Nov. 1975, alt. 2000 m, collected by R. Escobar, J. Kuhn et al., cultivated by M. & O. Robledo at La Ceja, 20 Jan. 1978, *C. Luer 2288* (Holotype: SEL); Cocorná, El Víaho, alt. 1600 m, Dec. 1974, *P. Ortiz 4266* (Herb. P. Ortiz).

This tiny species is rare and difficult to find, having been found growing on twigs of small trees in one valley. Consul Lehmann's painting 106 at K of this species bears the intended name *M. pterygiophora*. Lehmann's herbarium number *7275* with the collection data: Antioquia, San Gregorio, alt. 2000 m, are given, but the specimen apparently does not exist.

The solitary flower, large for the size of the plant, is borne by a short, slender peduncle. The ovary is winged with the margins overlapping the bases of the sepals. The apices of the sepals are thickened and obtuse. The lip is elliptical, verrucose and entire. It is apparently related to *M. hoeijeri* from Ecuador, but the latter is distinguished by the thick but short, well-formed, sepaline tails.

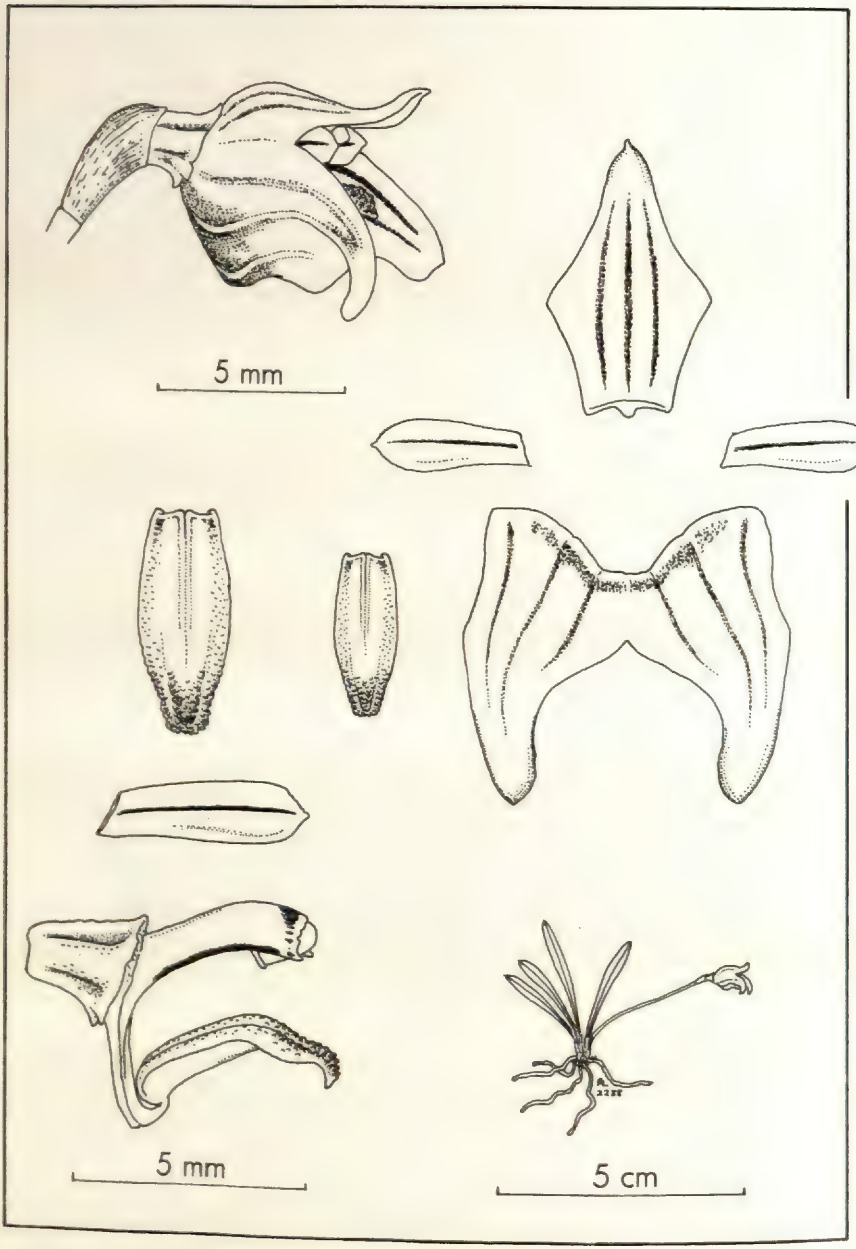


Plate 241. Masdevallia pterygiophora

Masdevallia pygmaea Kraenzl., Repert. Spec. Nov. Regni Veg. Beih. 34: 92, 1925.

Ety.: From the Latin *pygmaeus*, "pygmy," referring to the dwarf habit.

Syn.: *Masdevallia muriculata* Kraenzl., Repert. Spec. Nov. Regni Veg. Beih. 34: 99, 1925.
Ety.: From the Latin *muriculatus*, "muriculate," in reference to the spiny exterior of the flower.

Syn.: *Masdevallia exigua* Ames & C.Schweinf., Sched. Orchid. 10: 17, 1930.
Ety.: From the Latin *exiguus*, "little, feeble," referring to the habit of the plant.

Plant very small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 3-8 mm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thickly coriaceous, sulcate, narrowly linear, narrowly obtuse, 13-40 mm long including the indistinct petiole 3-5 mm long, 1-2 mm wide. **Inflorescence** a small, solitary, white flower, borne by a suberect, slender peduncle 8-20 mm long, with a bract near the base, from near the base of the ramicaul; floral bract tubular, 2 mm long; pedicel 1.5-4 mm long; ovary thick, densely muriculate, 1-1.5 mm long; **sepals** white, glabrous, carinate externally, the dorsal sepal suborbicular, concave, 2.5 mm long, 2.5 mm wide expanded, connate to the lateral sepals for 2 mm to form a cylindrical tube, the obtuse free portion contracted into a thickened, forwardly directed, white tail 4-6 mm long, the lateral sepals ovate, oblique, 3 mm long, connate 2.5 mm into a lamina 5 mm wide expanded, forming a deep mentum beneath the column-foot, the obtuse free portions contracted into thick, terete, upturned tails 3-7 mm long; **petals** white, oblong, 1.5 mm long, 0.5 mm wide, the apex truncate, irregularly erose-dentate, the labellar margin with a longitudinal callus, produced into a thick, subacute process at the base; **lip** white, suffused with purple, elliptical-oblong, 2-2.5 mm long, 0.75-1 mm wide, the disc with a pair of low, longitudinal calli, the apex rounded, the base truncate, hinged beneath; **column** white, more or less marked with purple along the margin, semiterete, 1.5 mm long, the foot 1 mm long, with a short, incurved extension.

COSTA RICA: Quebrada Verde, ca. 1867, *A. Endres 289* (Holotype: W). **San José**: above San Isidro, alt. 1600 m, 29 Dec. 1881, *F.C. Lehmann 1073* (BR, G); La Palma, Bosque de Aguilio, alt. 1190 m, Nov. 1922, *A. M. Brenes* (75) 405 (holotype of *M. exigua*: AMES); La Palma, alt. 1600 m, 17 Mar. 1924, *P.C. Standley 38057* (AMES); Parqué Nacional Braulio Carrillo, Vásquez de Coronado, road to Río Hondura, alt. 1350 m, 18 Dec. 1990, *S. Ingram & K. Ferrell 803* (AMES, CR, MO, SEL). **Heredia**: epiphytic near Concepción, alt. 1500 m, 4 Nov. 1978, *C. Todzia 517* (CR, SEL).
COLOMBIA: **Antioquia**: Dabeiba, Alto del Aguila, 27 Sept. 1974, collected by A. Arango, cultivated by M. & O. Robledo at La Ceja, 24 Sept. 1977, *C. Luer 1835* (SEL); Frontino, alt. 1400-1800 m, 7 Nov. 1884, *F.C. Lehmann 4143* (G). **Cauca**: epiphytic in humid forest above Papagalleros at Río Dagua, alt. 1800 m, 10 Mar. 1883, *F.C. Lehmann 2734* (holotype of *M. muriculata*: K; isotype: G).
ECUADOR: **Pichincha**: epiphytic in forest above Toachi, alt. 1500 m, *A. Hirtz s.n.* (MO).

This minute species is relatively infrequent in Costa Rica, and the Western Cordillera of Colombia, but rare in Ecuador where it has been collected but once. It has not yet been recorded from intervening Panama. It was first collected in Costa Rica by Endres who sent a specimen to Reichenbach with the proposed name "M. microscopica." It was collected in Colombia in 1881 and 1884 by Lehmann, the latter collection with the suggested name *M. lappacea*. A watercolor painting by Lehmann of another collection at Kew bears the intended name *M. pusillissima*. Both Endres' Costa Rican specimen and the first of those collected by Lehmann in Colombia were described later as two species by Kränzlin.

Vegetatively, this tiny species with narrow, semiterete leaves resembles some species of the genus *Trisetella* Luer. The minute, white flower with a densely papillose ovary and thickened, upturned tails is borne by a hairlike peduncle shorter than the leaves. The petals bear a tooth at the base, and the simple lip is bicallous.

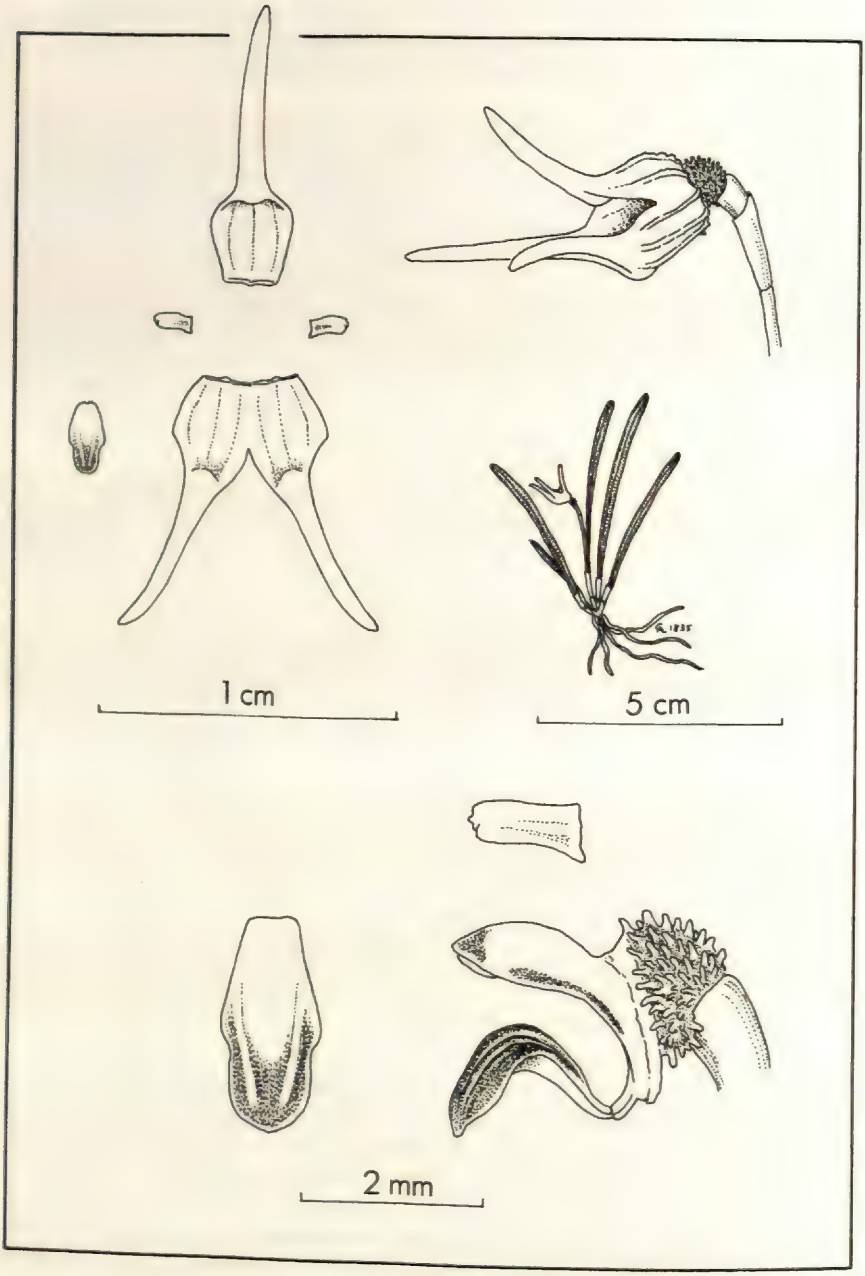


Plate 242. Masdevallia pygmaea

Masdevallia pyknosepala Luer & Cloes, sp. nov.

Ety.: From the Greek *pyknosepalum*, "thick sepal," referring to the sepals.

Species haec *M. pterygiophorae* Luer & Escobar similis, sed petalis callosis argute apiculatis, labello oblongo-obovato arcuato bicalloso distinguitur.

Plant very small, epiphytic, caespitose; roots slender. Ramicauls slender, 5 mm long, enclosed by 1-2 thin, tubular sheaths. **Leaf** erect, coriaceous, narrowly obovate, subacute, 12-20 mm long, 4-5 mm wide, gradually narrowed below to a petiole 5-8 mm long. **Inflorescence** a single flower, followed by another, ca. 5 mm apart, borne by a slender, erect peduncle 20-30 mm long, with a bract near the base, from low on the ramicaul; floral bract thin, tubular, 2.5 mm long, enclosing the pedicel; pedicel 3 mm long; ovary 2 mm long, 6-winged, subfimbriate; **sepals** light yellow, with apices yellow, glabrous, the dorsal sepal oblong, rounded and thickened at the apex, 7 mm long, 2.5 mm wide, connate to the lateral sepals for 3 mm to form a broad, cylindrical tube, the lateral sepals oblong-ovate, oblique, 7 mm long, 3.5 mm wide, connate 3 mm, forming a deep mentum with the column-foot, the free portions broadly obtuse, thick; **petals** translucent yellow-green, obliquely ovate, obtuse, minutely apiculate, 3 mm long, 1.5 mm wide, the labellar margin obtusely callous above the unguiculate base; **lip** light green, oblong-obovate, arcuate, 4 mm long, 1.5 mm wide, the apex obtuse, with a minutely verrucose callus beneath, the disc shallowly channeled between a pair of thick, longitudinal calli, the base truncate, hinged beneath; **column** green, shallowly bidentate, semiterete, 2.5 mm long, the foot 2 mm long with a short, incurved extension.

PERU: **Huánuco**: Carpish, Pointe Duran, alt. 1200 m, collected by Saul Ruiz Perez of Lima, Peru, July 2000, *P. Cloes s.n.* (Holotype: MO), C. Luer illustr. 19386.

This tiny species is known only from the recent collection made by Saul Ruiz. Apparently it is rare with a very limited distribution, as occurs with its closest relatives, such as the Colombian *M. pterygiophora*.

The flower, large for the size of the plant, is borne by a slender peduncle. A second, distant flower follows the first. The ovary is winged with the margins slightly fringed. The apices of the sepals are thickened and obtuse. The petals are minutely apiculate. The lip is oblong-obovate, obtuse and arcuate with a thick pair of longitudinal calli.

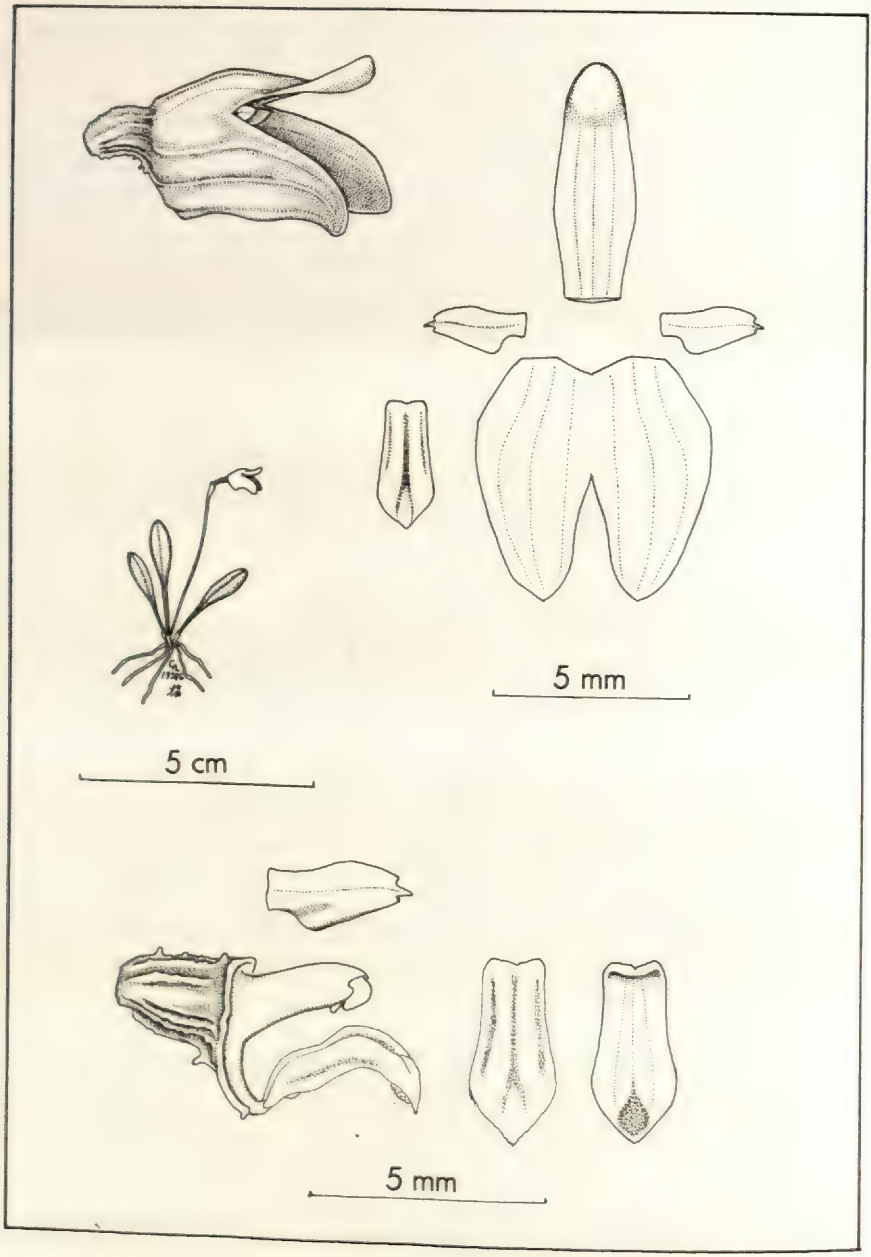


Plate 243. Masdevallia pyknosepala

Masdevallia sanchezii Luer & Andreetta, Phytologia 47: 68, 1980.

Ety.: Named in honor of Eduardo Sánchez of Cuenca, Ecuador, co-discoverer of this species.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, blackish, 2-5 mm long, enclosed by 2-3 close, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 2-4.3 cm long including the 0.8-1.5 cm long petiole, the blade narrowly elliptical, acute, 5-9 mm wide, narrowly cuneate below into the blackish petiole. **Inflorescence** a single flower borne by a more or less transverse, slender peduncle 3-3.5 cm long, with a bract near the base, from low on the ramicaul; floral bract 4 mm long; pedicel 5-6 mm long; ovary green, 3 mm long, subverrucose; **sepals** dull green, tricarinate along the veins, the carinae dark purple, the dorsal sepal ovate, 25 mm long including the tail, 5 mm wide, connate to the lateral sepals for 3.5 mm to form a short sepaline tube, the free portion triangular, the acute apex attenuated into a slender, antrorse tail, brown, becoming yellow toward the apex, the lateral sepals ovate, 25 mm long including the tails, each 5 mm wide, connate 5 mm to form an elongated, shallow mentum suffused with rose, the apices gradually narrowed into slender, yellowish tails; **petals** translucent greenish white, marked with purple along the midvein, ovate, 7.5 mm long, 1.5 mm wide, slightly thickened along the labellar margin, both margins cellular-erose, the apex yellow, acuminate, acute, 3 mm long; **lip** light green, marked with 5 longitudinal stripes of dark purple, elliptical, acute, 7.5 mm long, 2.5 mm wide, the disc with a pair of low, longitudinal carinae, the base cordate, hinged beneath to the column-foot; **column** green, semiterete, 2.5 mm long, minutely winged at either side of the apex, the foot 2 mm long with a very short, incurved extension.

ECUADOR: **Morona-Santiago**: epiphytic in forest near Río Calagrás, alt. 1600 m, 19 Sept. 1980, *C. Luer, J. Luer, A. Andreetta et al. 5506* (Holotype: SEL); same locality, Oct. 1977, *A. Andreetta, M. Portilla & E. Sánchez s.n.* (SEL); same collection, cultivated at Hostería Uzhupud, 25 May 1988, *C. Luer 13674* (MO); Río Bobonaza below Limón, alt. 300 m, 17 July 1980, *B. Øllegaard et al. 34567* (AAU); Cordillera del Condor east of Chuchumbletza, alt. 1750 m, 21 May 1988, *C. Luer, A. Hirtz, W. Flores, A. Andreetta & W. Teague 13543* (MO). **Zamora-Chinchipe**: Río Jamboe, alt. 1500 m, collected by A. Andreetta & M. Portilla, cultivated at Paute, 24 May 1988, *C. Luer 13639* (MO).

This little species, apparently endemic in southeastern Ecuador, was first collected and cultivated by Eduardo Sánchez in 1977, as well as Father Angel Andreetta in Cuenca.

Among the species in section *Amaluzae*, this species is probably most closely related to *M. amaluzae*, but it is easily distinguished from the latter by the unusual, long-acuminate petals and acute lip.

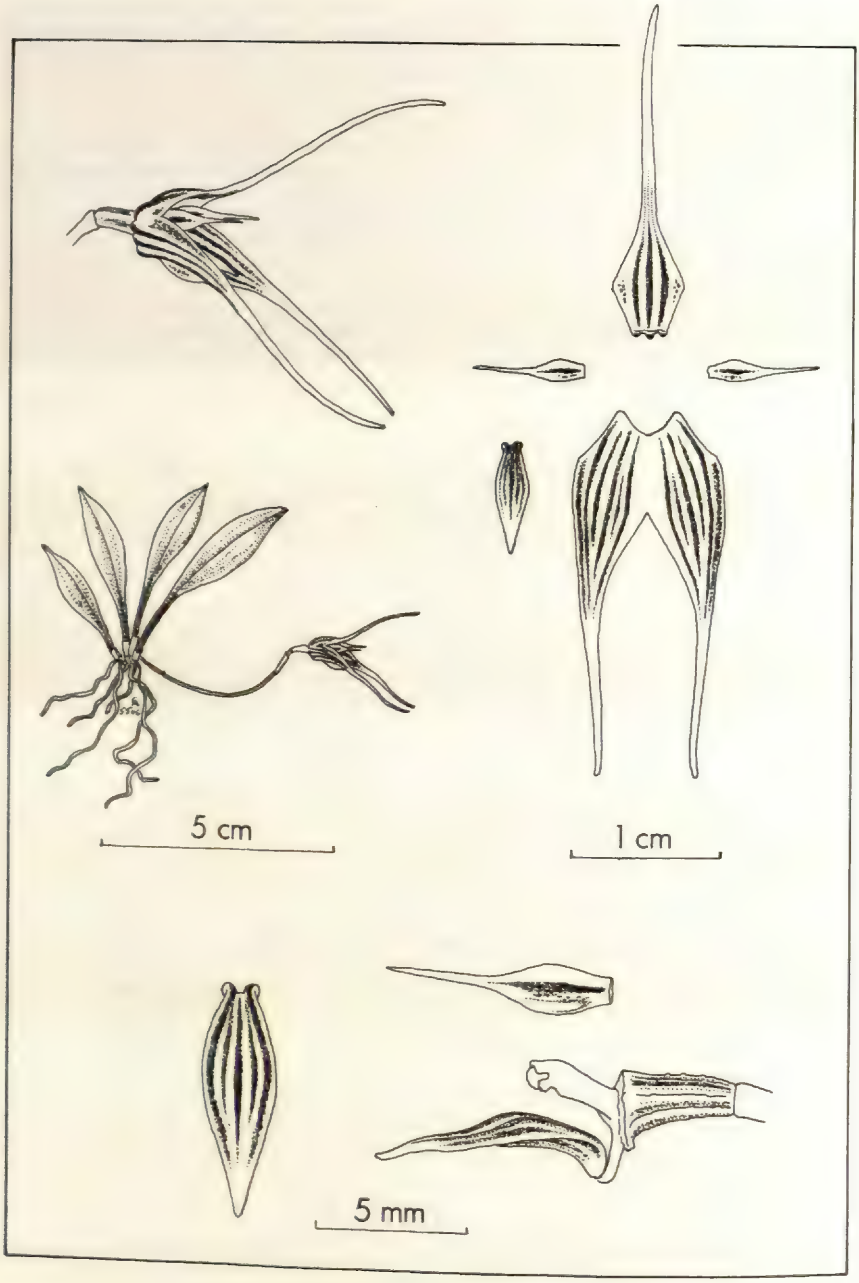


Plate 244. Masdevallia sanchezii

Masdevallia scalpellifera Luer, Harvard Papers in Botany 2: 60, 1997.

Ety.: From the Latin *scalpellifer*, "bearing a lancet, or scalpel," referring to the lip.

Plant small, caespitose; roots slender. Ramicauls slender, erect, ca. 0.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 2.8-4.2 cm long including the petiole ca. 1 cm long, the blade narrowly obovate, subacute to obtuse, 5-6 mm wide, the base narrowly cuneate into the petiole. **Inflorescence** a slow succession of single flowers borne in a congested, few-flowered raceme by a suberect, slender peduncle 5 cm long, from low on the ramicaul; floral bract tubular, 4 mm long; pedicel 5 mm long; ovary crested, 1.5 mm long; **sepals** greenish, suffused and veined in purple, glabrous, each tricarinate, the dorsal sepal narrowly ovate, 12 mm long, 3.5 mm wide, 3-veined, connate to the lateral sepals for 3 mm to form a short, cylindrical, sepaline tube, the apex acute, narrowly triangular, forwardly directed, the lateral sepals ovate, oblique, 12 mm long, 4 mm wide, 3-veined, connate 4 mm, shallowly concave above the middle, the apices narrowly acute; **petals** white, elliptical, acute, 3.5 mm long, 1.5 mm wide, with the labellar margin thickened; **lip** purple, obovate-subpandurate, 5.5 mm long, 2 mm wide above the middle with obtusely angled margins below the middle, the apex subacute, microscopically subverrucose, the disc with a central, flat callus below the middle, with folds near the middle, becoming 3 parallel crests above the middle, the base subcordate with obtuse lobes, hinged beneath; **column** semiterete, 2.5 mm long, the foot 1.5 mm long, with a thick, incurved extension.

ECUADOR. **Zamora-Chinchipe**: road between Loja and Zamora, alt. 2700 m, July 1992, *P. Cloes & H. ter Borch 85/2100* (Holotype: MO), C. Luer illustr. 17026.

This species, known only from a collection in southeastern Ecuador by Patrick Cloes, is closely related to *M. aphanes*, but differs in narrowly acute, more or less subcaudate apices of the sepals, instead of broadly triangular. The petals are similar to those of *M. aphanes*. Instead of oblong and distinctly unguiculate, the lip is subpandurate and subacute, the shape reminiscent of the blade of a lancet. Instead of a bicarinate claw, a flat callus is present below the middle, and it becomes three-crested above the middle.

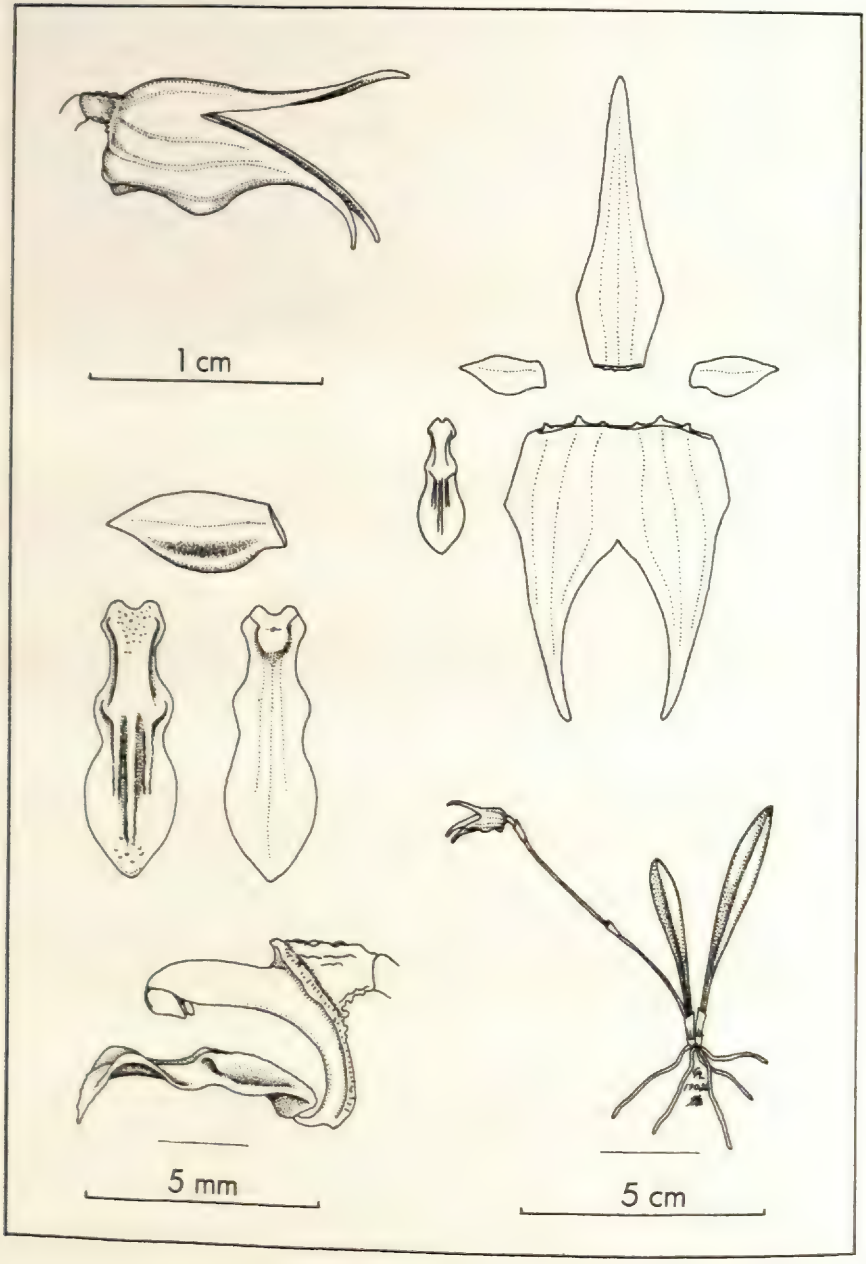


Plate 245. Masdevallia scalpellifera

Masdevallia schizopetala Kraenzl., Bull. Misc. Inform. 101, 1925.

Ety.: From the Greek *schizopetalon*, "a split petal," exaggeratedly referring to the apex of the petal.

Syn.: *Masdevallia morenoi* Luer, Phytologia 39: 213, 1978.

Ety.: Named in honor of Dr. Luis Moreno of Santa Cruz, Bolivia, who reportedly collected this species.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 5-10 mm long, enclosed by 2-3 ribbed, tubular sheaths. **Leaf** erect, coriaceous, 20-55 mm long including the slender petiole 5-10 mm long, the blade narrowly elliptical, subacute, 4-6 mm wide, narrowly cuneate below into the petiole. **Inflorescence** a small flower, produced successively in a distantly 3- to 4-flowered raceme, 2-3 cm long, borne by a slender, erect to suberect peduncle up to 11 cm long, with 2-3 distant bracts, from near the base of the ramicaul; floral bracts tubular, 3-4 mm long; pedicels 3-6 mm long; ovary green, with 6 undulating ribs, 2.5-4 mm long; **sepals** membranous, subcarinate, light yellow-green, lightly dotted, mottled or suffused with purple below the middle, glabrous, the dorsal sepal ovate, 14-20 mm long including the tail, 4 mm wide, connate to the lateral sepals for 4 mm to form a short, cylindrical tube, the free portion narrowly triangular, acute, gradually contracted into a slender, forwardly directed tail, the lateral sepals cellular-glandular within, ovate, oblique, 15-20 mm long including the tails, 4.5 mm wide, connate 3-4 mm, forming a short mentum beneath the column-foot, the free portions narrowly triangular, acute, gradually contracted into slender, forwardly directed tails; **petals** greenish white, ovate, oblique, unguiculate, 3.5-4 mm long, 1.5 mm wide, the apex acute, apiculate, the labellar margin thickened with an acute angle or tooth near or shortly below the middle above the unguiculate base; **lip** greenish white, dotted with red-purple, rhomboid with decurved sides, 4.5-5 mm long, 2 mm wide, the apex acute, the disc shallowly sulcate longitudinally, the base subcordate, hinged beneath; **column** white with a purple margin, semiterete, 3 mm long, the foot 1.5 mm long, with a short, incurved extension.

COLOMBIA: **Caldas**: epiphytic in thick forest at Benalcazár between Cartago and Anserma Vieja, alt. 1200-1600 m, June 1883, *F.C. Lehmann 3836* (Holotype: K; Isotypes: BR, HBG), C. Luer illustr. 17740. **Valle del Cauca**: collected near Cali, Feb. 2000, *A. Niessen 072* (MO), C. Luer illustr. 19320.
COSTA RICA: **Alajuela**: Cuesta de la Calera, San Ramón, 1869, *A. R. Endres 381* (W); El Socorro de San Ramón, alt. 1050 m, 25 July 1924, *A. M. Brenes 2242* (AMES); epiphytic on Volcán Poás, collected by R. L. Stone, Nov. 1976, cultivated at Los Altos Hills, CA., 14 Dec. 1978, *C. Luer 3638* (SEL). **Cartago**: epiphytic on Volcán Irazú, alt. 2000 m, 21 Sept. 1978, collected by L. Glicenstein, *C. Luer 4247* (SEL). **Guanacaste**: Monteverde, Finca San Bosco road, Río Negro, Atlantic slope, alt. 1400 m, 10 Nov. 1988, *W. Haber & W. Zuchowski 8767* (CR, MO); Abangares, road to Las Nubes, alt. 1450 m, 28 Jan. 1989, *W. Haber & W. Zuchowski 9025* (CR, MO).
PANAMA: **Chiriquí**: Fortuna Dam site, collected by R. L. Dressler, cultivated by R. Escobar in Medellín, Colombia, 1 July 1978, *C. Luer 2927* (SEL).
BOLIVIA: **Santa Cruz**: north of Caranda, alt. ca. 450 m, July 1975, reportedly collected by L. Moreno, cultivated by E. Marshall in Orlando, FL, 26 Apr. 1977, *C. Luer 1606* (holotype of *M. morenoi*: SEL).

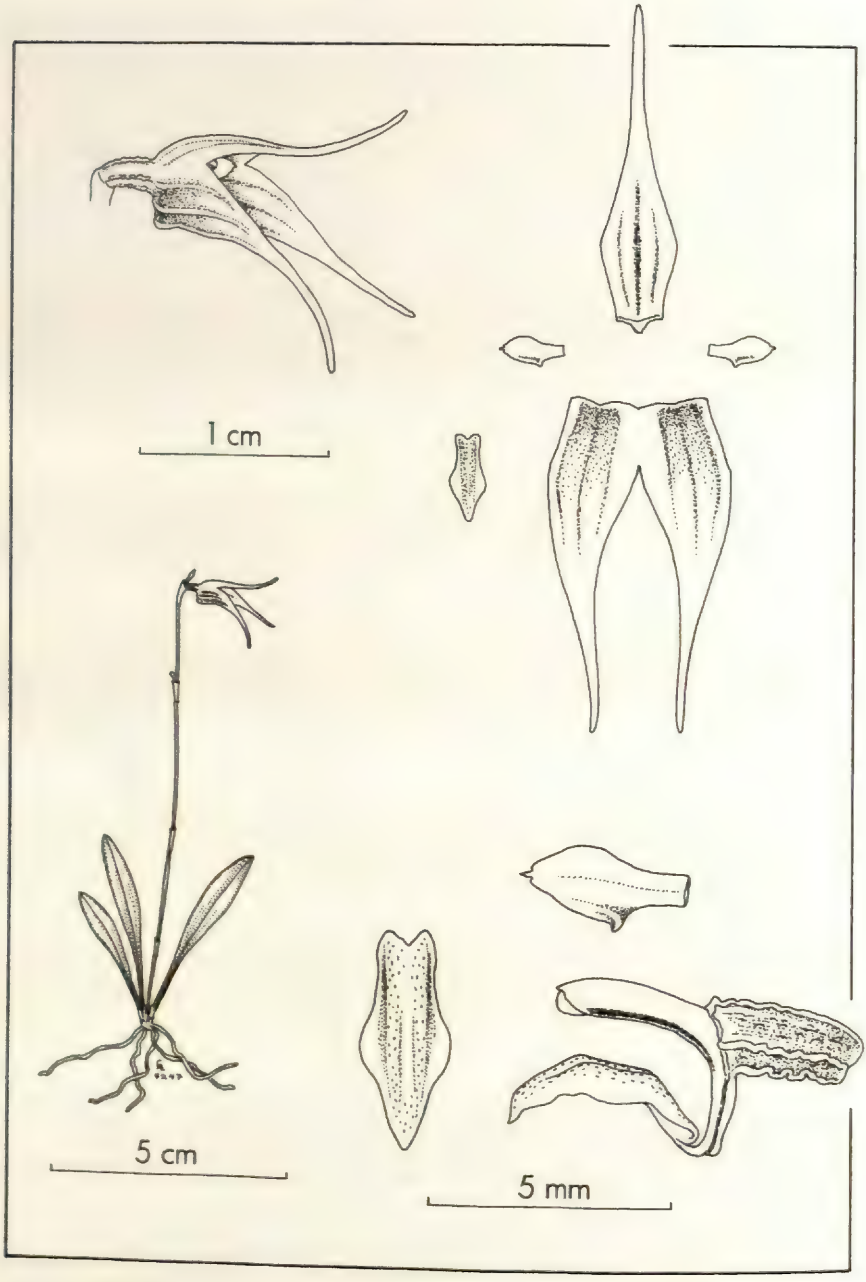


Plate 246. Masdevallia schizopetala

This species was first collected in 1869 in Costa Rica by Endres, who sent detailed illustrations with specimens to Reichenbach, but no action was taken. In 1925, it was described by Kränzlin from a collection by Lehmann from the Central Cordillera of Colombia. Although relatively frequent in Costa Rica and western Panama, it apparently is seldomly collected in Colombia. The type-locality has been reduced to farm land. The species was redescribed in 1978 from a cultivated plant that was reportedly collected by Dr. Moreno in Bolivia.

Vegetatively, *M. schizopetala* is similar to other small, caespitose plants of the genus. An elongating, weak peduncle bears a flower successively in a distantly two- or three-flowered raceme. The peduncle stands erect until the weight of the lengthening raceme causes it to bend. The pale green sepals are lightly marked with purple; the unguiculate petals bear an acute, callous angle on the labellar margin; and the smooth, lightly sulcate lip is rhomboid in outline with decurved sides.

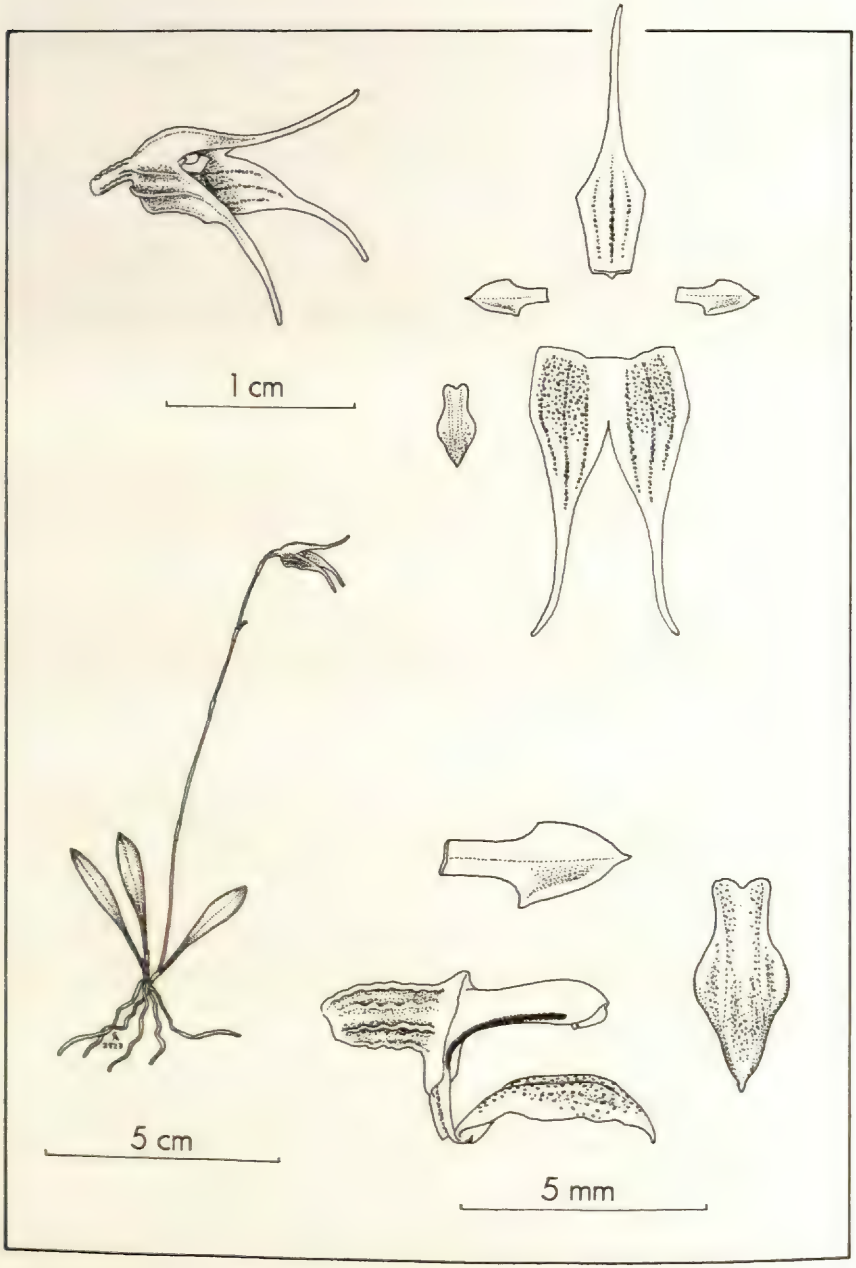


Plate 247. Masdevallia schizopetala

Masdevallia schizostigma Luer, Monogr. Syst. Bot. 72: 114, 1998.

Ety.: From the Greek *schizostigma*, "a split stigma," referring to the divided stigma

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, blackish, 0.5-1 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, petiolate, 4-6 cm long including the petiole 1.5-2 cm long petiole, the blade narrowly elliptical, subacute, 0.8-1 cm wide, narrowly cuneate below into the blackish petiole. **Inflorescence** a single flower borne by an ascending, slender peduncle 4-5 cm long, with a bract near the base, from low on the ramicaul; floral bract 4 mm long; pedicel 4 mm long; ovary 4 mm long, carinate; **sepals** yellow, tricarinate along the veins, the dorsal sepal ovate, 25 mm long including the tail, 4.5 mm wide, 3-veined connate to the lateral sepals for 4.5 mm to form a sepaline tube, the free portion triangular, the apex acute, attenuated into a slender, antrorse tail, the lateral sepals narrowly ovate, 25 mm long including the tails, each 3 mm wide, 3-veined, connate 6 mm without forming a shallow mentum, rose, the apices attenuated into slender, yellowish tails; **petals** white, glabrous, narrowly elliptical, sharply acute, 6 mm long, 1.5 mm wide, 1-veined, slightly thickened along the labellar margin; **lip** yellow, smooth, narrowly elliptical-ovate, sharply acute, 7 mm long, 1.5 mm wide, 1-veined, the disc featureless, the base truncate, inflexible attached to the base of the column; **column** semiterete, 2.5 mm long, the stigma bifurcated, the foot obsolescent.

PERU: **Amazonas**: El Mirador, alt. 2000 m, July 1998, *Patrick Cloes s.n.* (Holotype: MO), C. Luer illustr. 18886.

This little species, apparently endemic in northeastern Peru, was collected by Patrick and Martine Cloes of Hasselt, Belgium. Superficially, the small, yellow, slender-tailed flower appears similar to Ecuadorian *M. amaluzae* or *M. sanchezii* with the acute tips of the petals and lip visible peeking out the sepaline tube. The petals and lip are similar to each other: narrowly elliptical and sharply acute. The single-veined lip is smooth and featureless. The truncate base is inflexibly connate to the base of the column. The anther is operculate and nondeciduous. The stigma is shallowly cleft between two short, pedicellate, stigmatic lobes, a feature heretofore unknown in the genus.

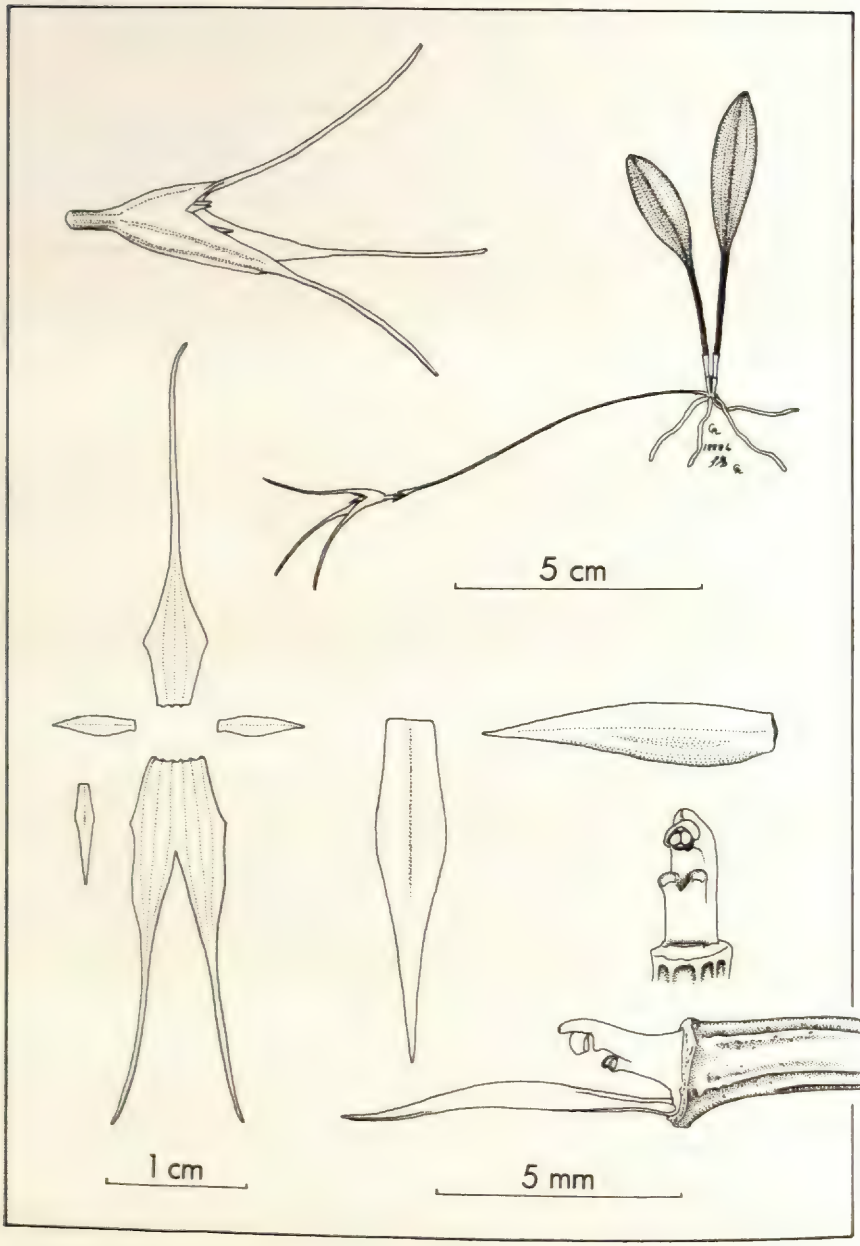


Plate 248. Masdevallia schizostigma

Masdevallia scopaea Luer & Vásquez, Phytologia 55: 199, 1984.

Ety.: From the Greek *skopaios*, "dwarf," referring to the habit.

Plant very small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 2-3 mm long, enclosed by 2 tubular sheaths. **Leaf** erect, coriaceous, 15-23 mm long including the 1-2 mm long petiole, the blade elliptical, 3.5-5 mm wide, with the apex subacute, the base cuneate into the petiole. **Inflorescence** an abbreviated, successively few-flowered raceme borne by a slender, suberect peduncle up to 20 mm long, from low on the ramicaul; floral bract tubular, 3 mm long; pedicel 2 mm long; ovary 1.5 mm long, with undulating ribs; **sepals** yellow, striped with purple-brown along the veins, glabrous, the dorsal sepal narrowly ovate, 13 mm long, 3.25 mm wide, the apex narrowly obtuse, connate to the lateral sepals for 4 mm to form a short, cylindrical tube, the lateral sepals suffused with purple below the middle, ovate, oblique, subacute, 12 mm long, 4 mm wide, connate 4 mm, forming a small mentum below the column-foot; **petals** yellow with purple midvein, oblong, acute, unguiculate, 4.5 mm long, 1.5 mm wide, the labellar margin with a low, longitudinal callus ending in a short, rounded, retrorse process above the base; **lip** yellow, suffused with purple-brown, elliptical, 5.5 mm long, 2 mm wide, the apex subacute with a low callus, the disc shallowly sulcate between a pair of low, longitudinal calli, the base narrowly subcordate, deflexed, hinged beneath; **column** yellow with purple margins, semiterete, 2.5 mm long, the foot 2 mm long with an incurved extension.

BOLIVIA: **La Paz**: Nor Yungas, epiphytic in cloud forest west of Coroico, alt. 1800 m, 22 Jan. 1984, *C. Luer, J. Luer & R. Vásquez 9425* (Holotype: SEL).

This minute, caespitose species is known by only one plant discovered by Roberto Vásquez in the Nor Yungas of Bolivia. This immediate area has been searched repeatedly without another plant being found. As of this date, the original plant continues to thrive in cultivation at Colomborquídeas in Colombia.

Masdevallia scopaea is characterized by an abbreviated raceme borne by a short peduncle, but still longer than the tiny leaves; a lightly crested ovary; a proportionately large flower with purple-striped, acute, tailless sepals; petals with a short, obtuse process above an unguiculate base; and an elliptical, obtuse lip sulcate centrally between a pair of low longitudinal calli.

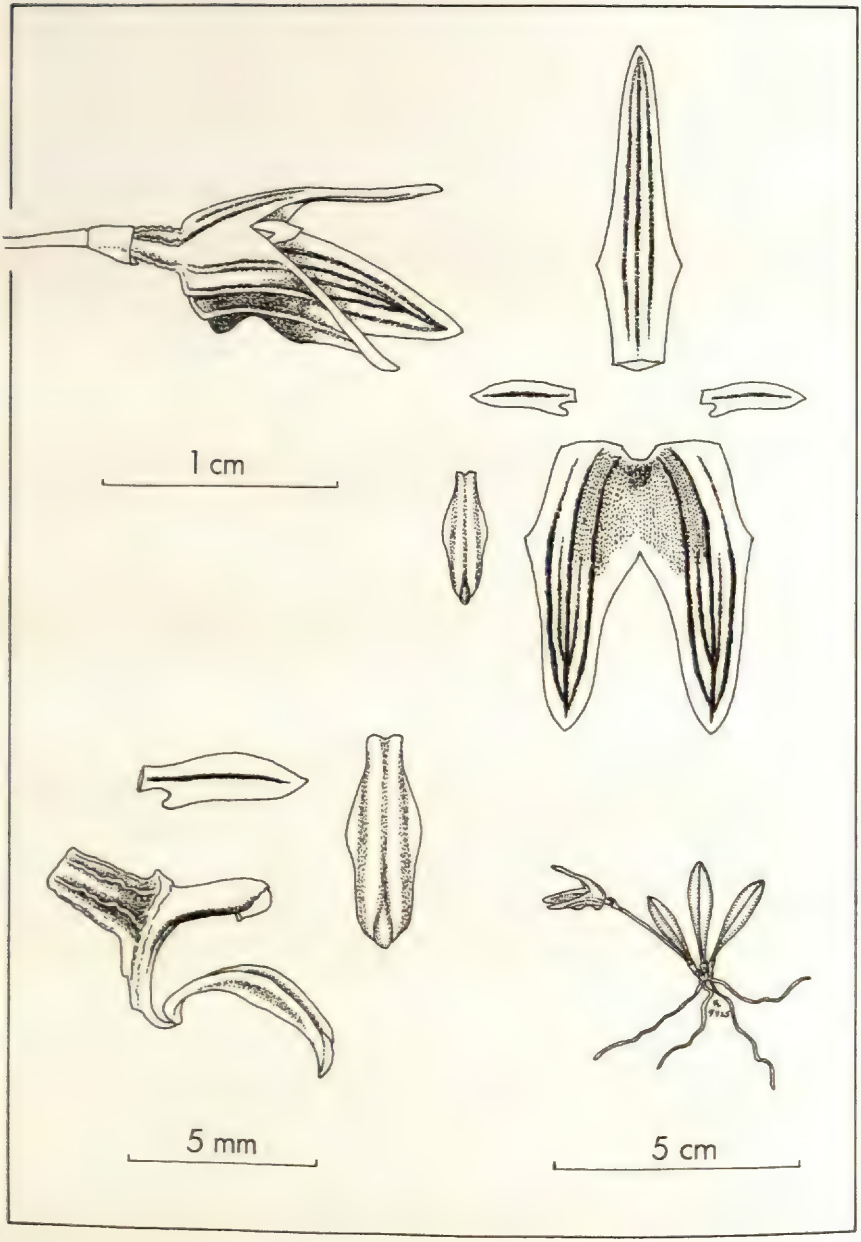


Plate 249. Masdevallia scopea

Masdevallia setipes Schltr., Repert. Spec. Nov. Regni Veg. 27: 38, 1929.

Ety.: From the Latin *setipes*, "a bristle-like foot," referring to the long, slender peduncle.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, blackish, 7-8 mm long, enclosed by 2 thin, tubular sheaths. **Leaf** erect, coriaceous, 25-35 mm long including a petiole ca. 10 mm long, the blade narrowly elliptical, acute, 4-5 mm wide, narrowly cuneate below into the petiole. **Inflorescence** a single flower, borne by a slender, more or less horizontal peduncle 4.5-5 cm long, with a thin bract near the middle and another near the base, from near the base of a ramicaul; floral bract tubular, 3 mm long; pedicel 2 mm long; ovary minutely crested, 2 mm long; **sepals** translucent, diffusely mottled with purple, glabrous, the dorsal sepal with 3 purple stripes, ovate, 8 mm long including the thick tail 3 mm long, 3 mm wide, connate to the lateral sepals for 2 mm to form an inflated tube, the free portion triangular, acute, contracted into the tail, the lateral sepals ovate, subacute, oblique, 8 mm long including the thick tail 2 mm long, connate 3 mm into a ventricose lamina; **petals** white, ovate, oblique, acute, unguiculate, 3 mm long, 2 mm wide, the labellar margin dilated, slightly thickened; **lip** elliptical-oblong, 4 mm long, 1.75 mm wide, the apex obtuse to rounded, lightly verrucose, the disc with a low pair of longitudinal calli in the middle third, the base subcordate, hinged beneath; **column** white, semiterete, 3 mm long, the foot 2 mm long with a short, incurved extension.

BOLIVIA: **La Paz**: Larecaja: epiphytic, Hacienda Simaco, above the way to Tipuani, alt. 1400 m, Feb. 1920, *O. Buchtien 5020* (Lectotype: AMES; Isotype: US); above Tipuani, alt. ca. 1500 m, collected Aug. 1991, cultivated in San Francisco, CA, Apr. 1992, by *W. Teague 135* (MO); Nor Yungas, epiphytic in forest west of Coroico, alt. 2000 m, collected 27 Aug. 1991, cultivated by A. Hirtz in Quito, Ecuador, 29 Jan. 1992, *C. Luer 16196* (MO).

This little species was first collected by Otto Buchtien in the remote Bolivian valley between Sorata and Tipuani in 1920, and it had not been seen again until 1991. Collected out-of-flower in nearby forested valleys, it flowered in cultivation by Walter Teague the following year. It is distinguished by the very small, purplish flower borne successively by an elongated, slender peduncle. The sepals form a tube prominently inflated on its bottom half. The apices are contracted into short, thick tails. The petals are acute with the labellar margin dilated and callous above the unguiculate base. The lip is elliptical and obtuse with a low pair of central calli.

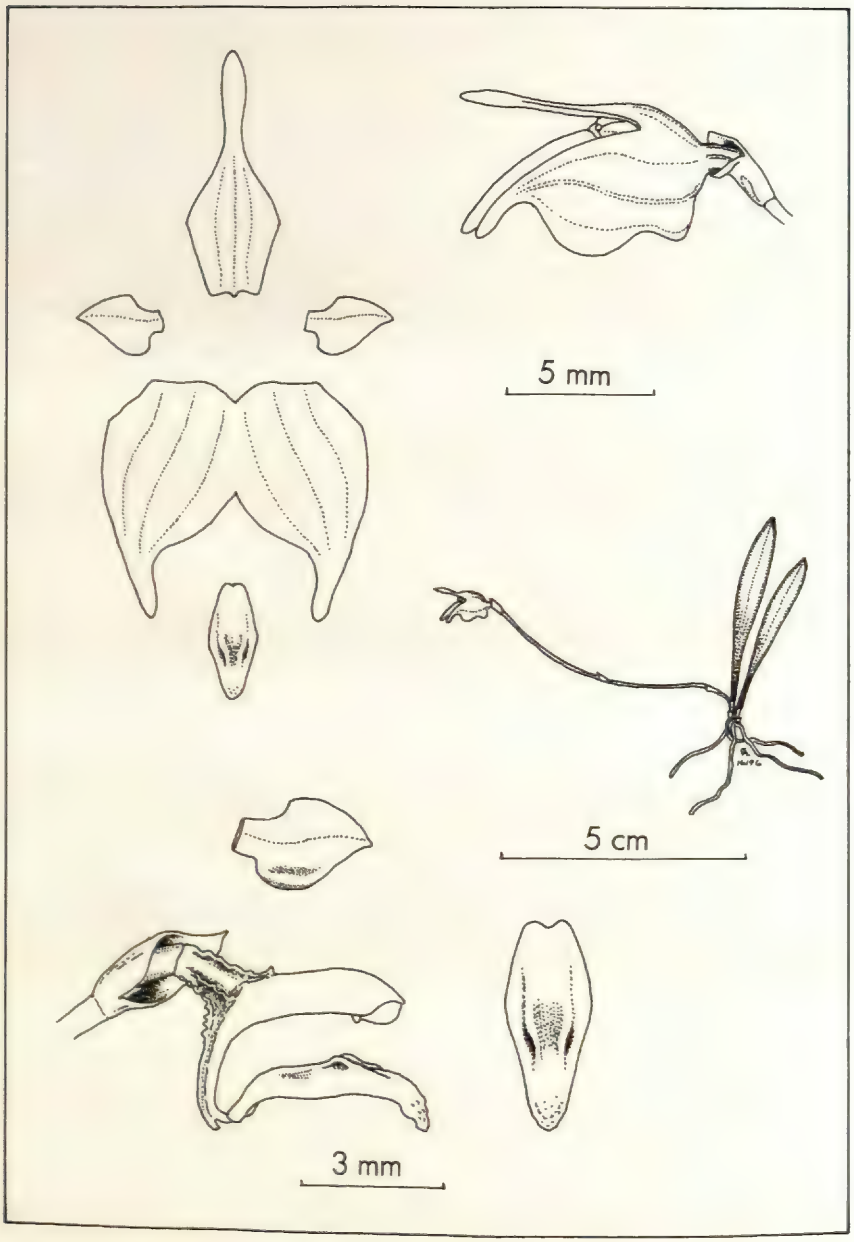


Plate 250. Masdevallia setipes

Masdevallia trifurcata Luer, Lindleyana 11: 190, 1996.

Ety.: From the Latin *trifurcatus*, "three-forked," referring to the three, similar apices of the sepals.

Plant small, epiphytic, caespitose; roots slender. Ramicauls blackish, slender, erect, 5-8 mm long, enclosed by 2 tubular sheaths. **Leaf** erect, thickly coriaceous, 3-4.5 cm long including the 1-1.5 cm long petiole, the blade elliptical, acute, 5-8 mm wide, the base narrowly cuneate into the blackish petiole. **Inflorescence** a successively few-flowered raceme borne by a slender, horizontal to ascending peduncle up to 6 cm long, from low on the ramicaul; floral bract tubular, 3 mm long; pedicel 4 mm long; ovary 2 mm long, with undulating ribs; **sepals** yellow, glabrous, the dorsal sepal ovate, 17 mm long, 6 mm wide, connate to the lateral sepals for 7 mm to form a cylindrical, sepaline tube, the free portion narrowly triangular, acute, thickened, the lateral sepals ovate, oblique, 19 mm long, 8 mm wide, connate 10 mm, the free portions triangular, acute; **petals** yellow, oblong, subacute, unguiculate, 4.5 mm long, 2 mm wide, the labellar margin longitudinally thickened, flattened along the margin, with a obtuse angle above the claw; **lip** yellow, oblong, 6.5 mm long, 2 mm wide, the apex obtuse with a low callus beneath, the disc minutely verrucose, laterally compressed above the base, hinged beneath; **column** semiterete, 4 mm long, the foot 2 mm long with an incurved extension 1 mm long.

ECUADOR: **Zamora-Chinchipe**: Cordillera del Condor, alt. ca. 1500 m, collected ca. Feb. 1994, obtained by D. D'Alessandro from J. Portilla, cultivated at Beaver, PA, *C. Luer 17170* (Holotype: MO).

This small species is probably endemic in the Cordillera del Condor of southeastern Ecuador. It is distinguished by a successively flowered raceme borne by a slender, ascending peduncle, and a proportionately large, yellow flower with triangular, tailless sepals. The oblong, unguiculate petals are flattened along the thickened, labellar margin. The oblong lip is minutely verrucose with a laterally compressed base.

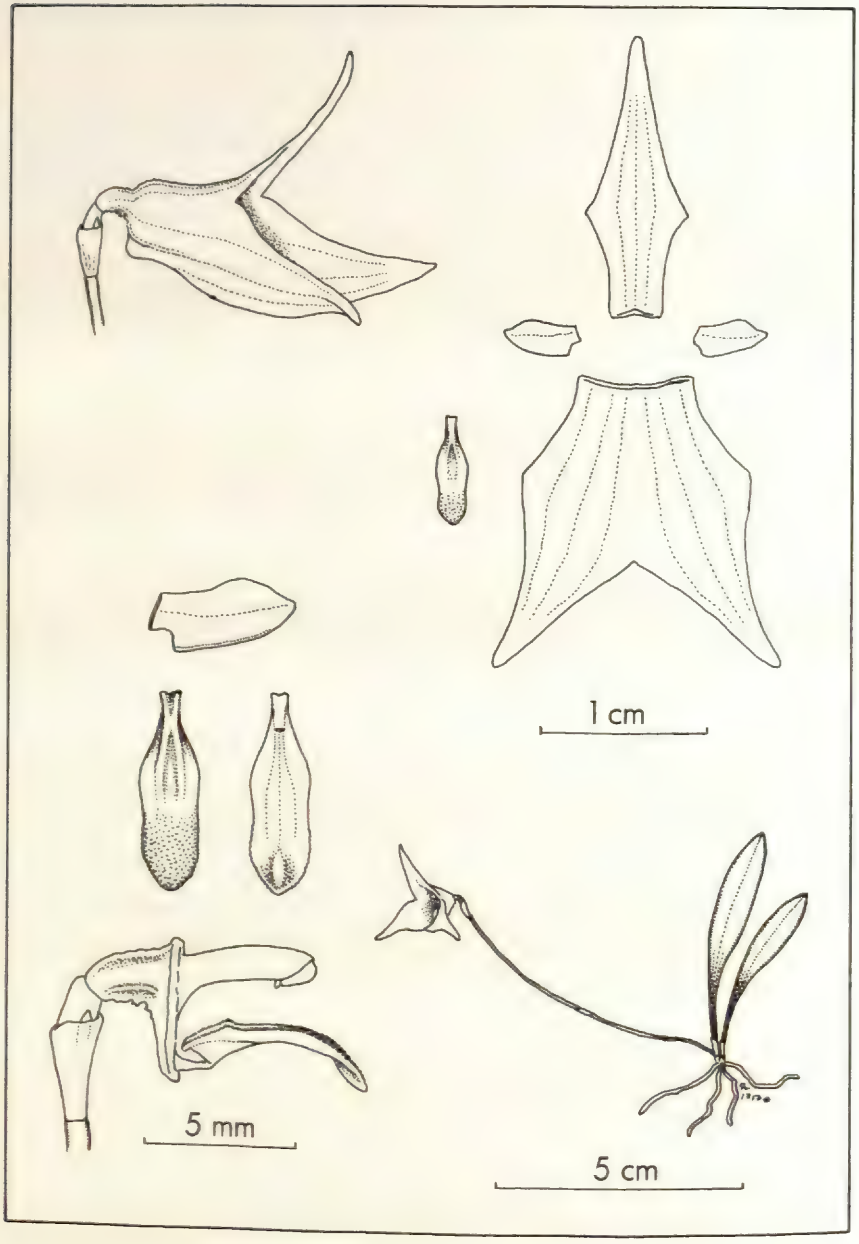


Plate 251. Masdevallia trifurcata

Masdevallia vieirana Luer & Escobar, Lindleyana 3: 211, 1988.

Ety.: Named in honor of Sr. Luis Carlos Vieira of Medellín, Colombia, who has contributed much to the knowledge of the orchids of Colombia.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 0.5-1.5 cm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, coriaceous, 8-13 cm long including the petiole 1-2.5 cm long, the blade elliptical-oblong, subacute, 1.4-1.9 cm wide, cuneate below into the petiole. **Inflorescence** a solitary flower, followed by a second flower, borne by a slender, suberect to descending peduncle 4-6 cm long, with a bract near the base, from low on the ramicaul; floral bract tubular 7 mm long; pedicel 10 mm long; ovary 6 mm long; **sepals** dull white, glabrous, the dorsal sepal oblong-obovate, 10 mm long, 4 mm wide, connate to the lateral sepals for 6 mm to form a cylindrical, sepaline tube, the apex acute, gradually contracted into a more or less reflexed, filiform tail ca. 5 cm long, the lateral sepals with a purple spot at the base within, the spot light brown externally, narrowly ovate, oblique, connate 23 mm to form an elliptical lamina 12 mm wide expanded, the narrow free portions, acute, contracted into filiform tails ca. 2 cm long, the entire length of the sepals 55 mm long; **petals** white, more or less oblong, 3.5 mm long, 2 mm wide, the apex acute, the labellar half with a red, flat, longitudinal callus with a round, elevated margin between the middle and lower thirds, the callus produced into a broad, retrorse process above the base; **lip** white, oblong, acute, 5.25 mm long, 1.5 mm wide, the disc with a pair of erect, acute folds near the middle, the base truncate, hinged beneath; **column** white, semiterete, 4 mm long, the foot 2 mm long including a short, incurved extension.

COLOMBIA: **Antioquia**: Río Nechí, alt. 500 m, collected by Manuel Zapata, Dec. 1987, cultivated at Colomborquídeas, 6 Apr. 1988, *C. Luer 13055* (Holotype: MO).

This species is apparently endemic in a low altitude forest of northern Colombia. It is s related to *M. naranjapatae* and *M. zahlbruckneri*, both also found at low altitudes. *Masdevallia vieirana* is characterized by narrowly oblanceolate leaves that are similar to those of many other species of the section. The flowers are borne successively on a horizontal to descending peduncle. The sepals are white and delicate white with long, slender, fragile tails held forward in apposition. The retrorse, basal callus of the lip is reminiscent of that seen in *M. zahlbruckneri*. Most unusual in the section, a short portion of the calli near the middle of the lip is erect and acute.

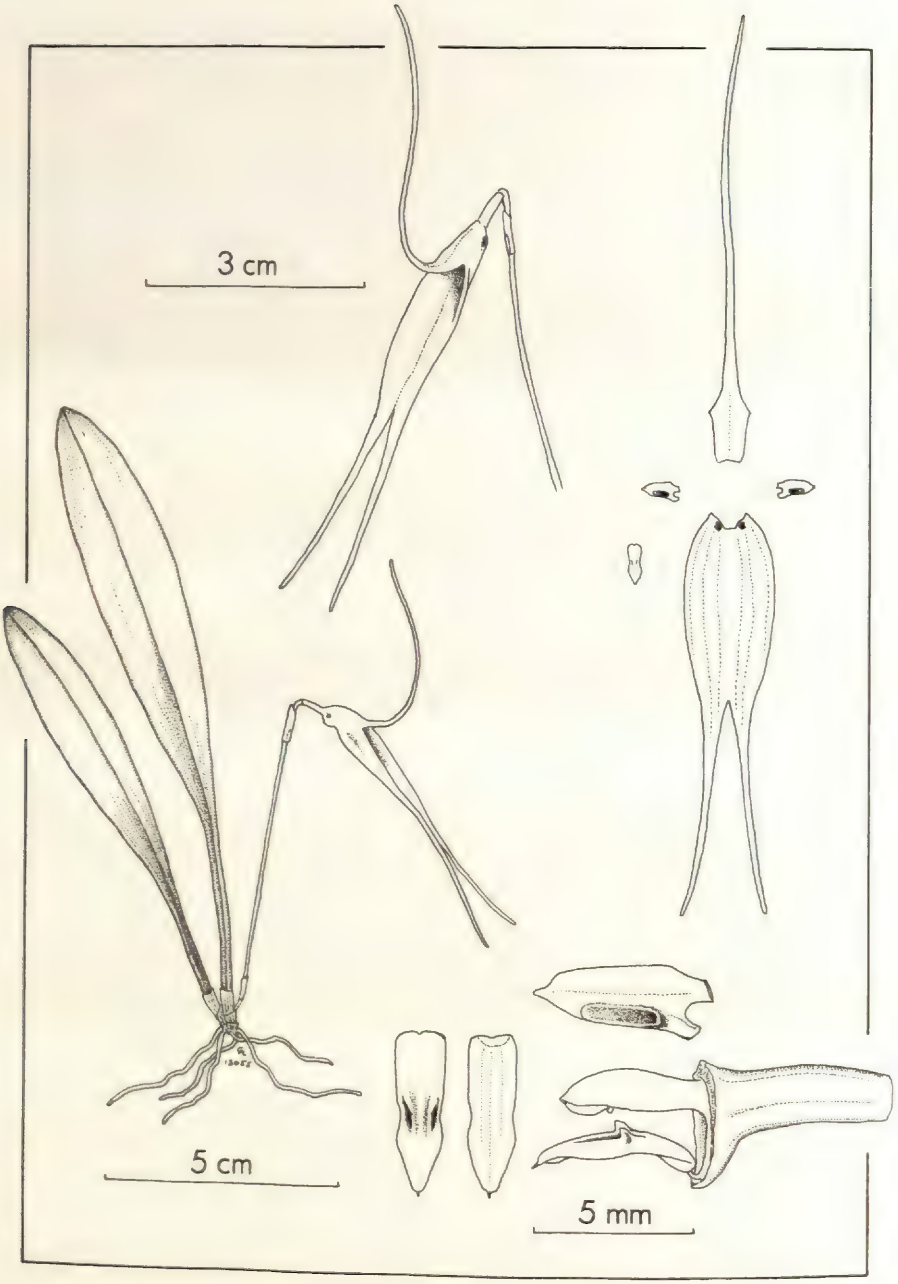


Plate 252. Masdevallia vieirana

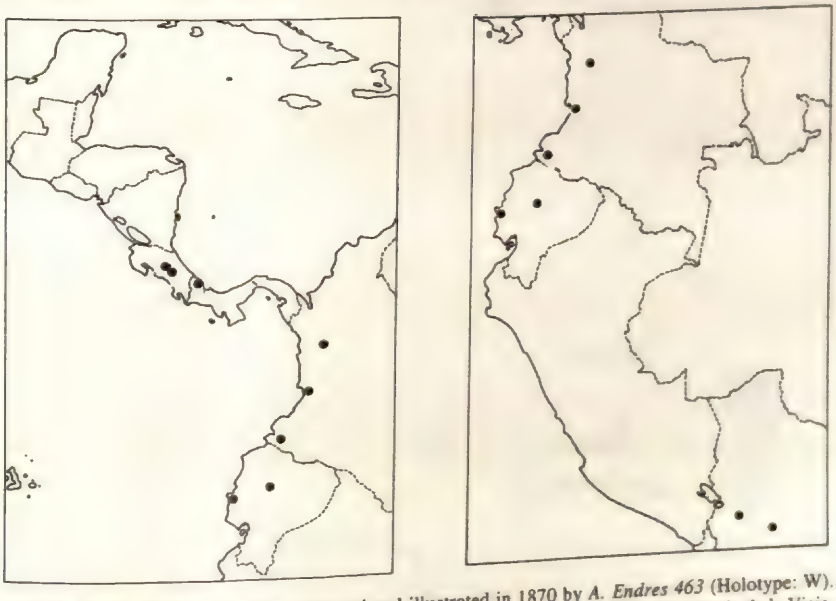
Masdevallia zahlbruckneri Kraenzl., Repert. Spec. Nov. Regni Veg. 17: 413, 1921.

Ety.: Named in honor of Councilman Dr. Al. Zahlbruckner of Vienna, Austria, who supplied Fritz Kränzlin with many of Reichenbach's herbarium specimens.

Syn.: *Masdevallia humilis* Luer, Phytologia 46: 350, 1980.

Ety.: From the Latin *humilis*, "humble, or low," referring to qualities of the plant.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 1-1.5 cm long, enclosed by 2-3 close, tubular sheaths. **Leaf** erect to suberect, coriaceous, 4-10 cm long including an indistinct petiole 1-2 cm long, the blade narrowly obovate, obtuse, 1.2-2 cm wide, gradually narrowed below into the sub-petiolate base. **Inflorescence** a loose, successively few-flowered raceme borne by a descending to horizontal peduncle 3-7 cm long, with a bract below the middle, from low on a ramicaul; floral bract-stubular, 4-6 mm long; pedicel 5-12 mm long; ovary 3-4 mm long; **sepals** glabrous externally, the dorsal sepal yellow, often flecked with red or purple, microscopically cellular, obovate, 6-10 mm long, 4.5-6 mm wide, connate to the lateral sepals for 3-5 mm to form a cylindrical tube, the free portion broadly triangular, the obtuse apex contracted into an erect, slender (occasionally thickened distally), yellow tail 8-22 mm long; the lateral sepals red-purple, diffusely spotted with darker purple, the spots sometimes raised, sometimes with tufts of red hairs, cellular-pubescent to shortly pubescent within, connate 7-12 mm into an ovate, bifid lamina 10-18 mm long, 8.5-14 mm wide, the acute apices contracted into slender, yellow tails 3-15 mm long; **petals** white, dark red-purple on the labellar half, elliptical-oblong, 5-6 mm long, 1.75-3.3 mm wide, the apex obtuse, apiculate or retuse, the labellar half callous, ending in an obtuse angle, or 1 or 2 retrorse teeth above the unguiculate base; **lip** rose or white, diffusely dotted with purple, the dots sometimes raised, oblong-ligulate, 5-7 mm long, 1.75-3 mm wide, very slightly narrowed near the middle, the apex subacute, rounded to subtruncate, the disc lightly channeled between a low, longitudinal pair of calli, the base subtruncate, hinged below; **column** yellow-white to green, the margin usually purple, semiterete, 4-5.5 mm long, the foot stout with a short, incurved extension.



COSTA RICA: without locality, collected and illustrated in 1870 by *A. Endres 463* (Holotype: W). **Alajuela**: Santa Maria National Park, alt. 600 m, 7 Feb. 1978, *R. Liesner 5104* (MO); Rincón de la Vieja, Quebrada Rancho Grande, alt. 700 m, 7 July 1978, *C. Todzia 351* (CR); near Rincón de la Vieja, alt. 800 m, 27 June 1981, *C. Luer & A. Luer 6525* (SEL).

PANAMA: **Bocas del Toro**: Chorro de Tife, collected by R.L. Dressler, cultivated at SEL, 17 Mar. 1983, *C. Luer 8696* (SEL); collected by E. Olmos, cultivated at Finca Dracula, Cerro Punta, Nov. 1998, *C. Luer 18956* (MO).

COLOMBIA: **Antioquia**: Dabeiba, Alto del Aguila, alt. 1700 m, 20 Sept. 1974, *L. Agudelo s.n.* (JAUM), cultivated by G. Misas, 30 Sept. 1977, *C. Luer 1875* (SEL); Parqué Nacional Natural "Las Orquídeas," Sector Venados, banks of Río Venados, alt. 785-880 m, 5 June 1988, *A. Cogollo & J.G. Ramírez 3271* (JAUM). **Nariño:** road to Tumaco, cultivated by Sra. Amalia Lehmann de Sarria in Popayán, 25 July

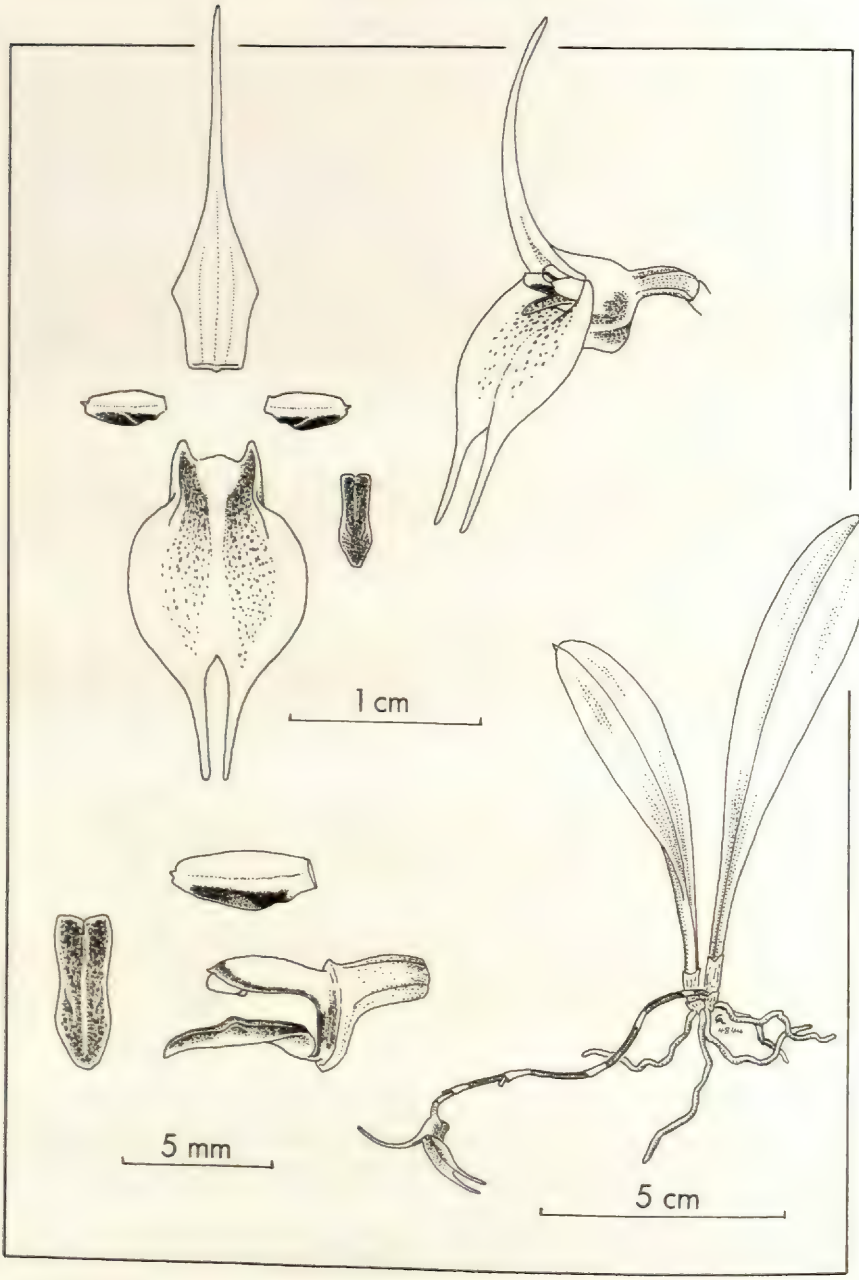


Plate 253. Masdevallia zahlbruckneri

1978, *C. Luer 2971* (SEL). **Valle de Cauca**: Río Dagua, alt. 1500 m, cultivated by Sra. Amalia Lehmann de Sarria in Popayán, 21 Oct. 1982, *C. Luer 8177* (SEL).
ECUADOR: **Cotopaxi**: epiphytic in cloud forest west of El Corazón, alt. 1200 m, 18 Feb. 1979, *C. Luer, J. Luer & A. Hirtz 4031* (SEL). **Manabí**: epiphytic in cloud forest at the summit of Cerro Montecristi, alt. 200 m, *C.H. Dodson & G. Frymire 176* (AMES); same locality, *C.H. Dodson 382* (MO, SEL); near Manta, alt. 400 m, collected by R. Estrada, cultivated at Colomborquídeas, 6 Apr. 1988, *C. Luer 13046* (MO).
BOLIVIA: **Cochabamba**: Chapare, epiphytic in forest near Villa Tunari, alt. ca. 400 m, Dec. 1978, cultivated at SEL 15 Jan. 1980, *C. Luer, J. Luer et al. 4844* (SEL). **La Paz**: Nor Yungas, west of Coroico, collected Aug. 1991, flowered in San Francisco, CA, by *W. Teague 259* (MO).

This species is widely but locally distributed in low-altitude forests from Central America to coastal Ecuador and central Bolivia. It was first collected by Endres in Costa Rica in 1870 and dutifully forwarded with a superb, detailed illustration to Professor Reichenbach, who, possibly for no other reason than that he simply forgot about it, did nothing with it. It lay unnamed in his herbarium until Kränzlin named it in 1921 for one of his friends.

Masdevallia zahlbruckneri is characterized by the caespitose habit and a more or less horizontal to descending, successively flowered peduncle. The flowers are variable in size, in the lengths of the tails (the tail of the dorsal sepal sometimes being clavate in Central America), and in the shape of the red-purple calli of the petals. Some populations can be recognized as distinct from others.

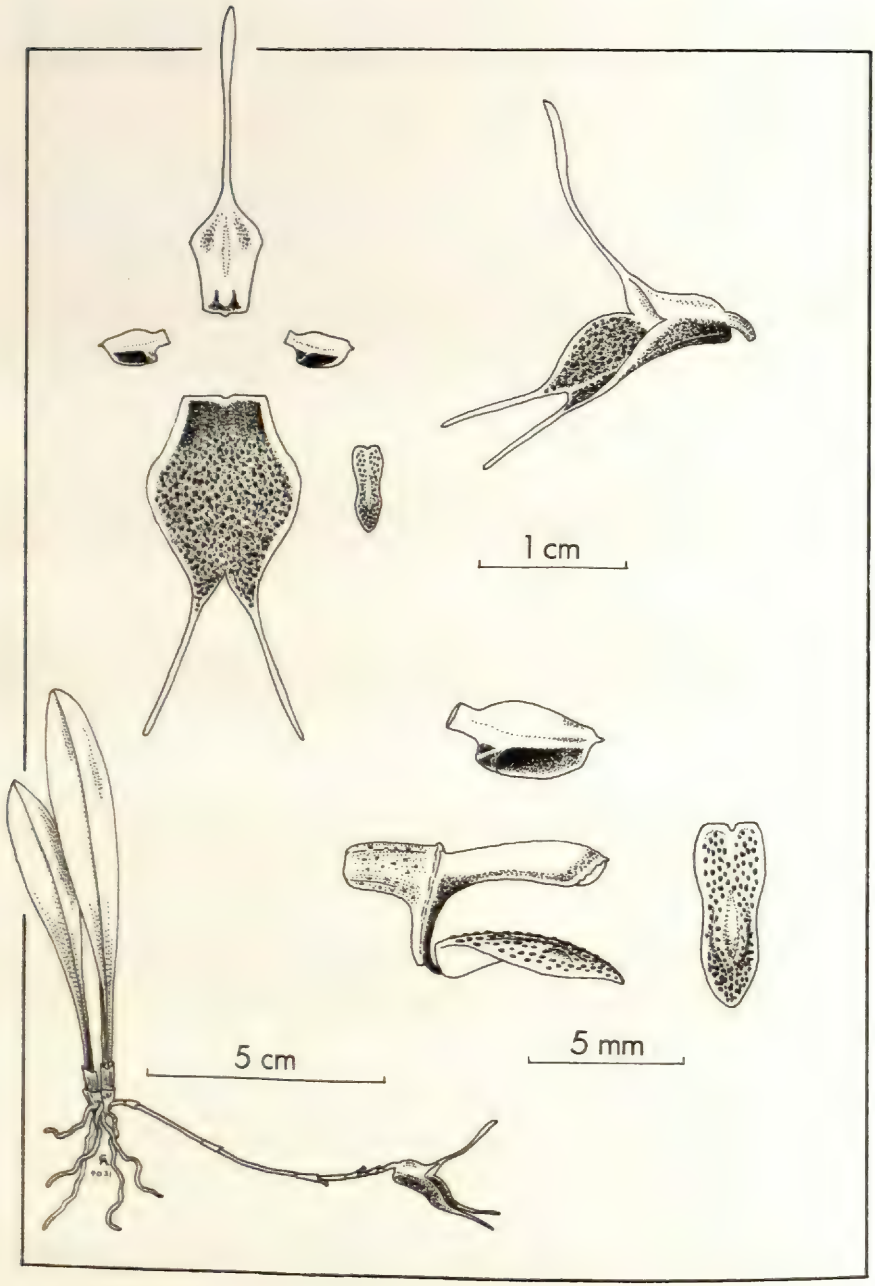


Plate 254. Masdevallia zahlbruckneri

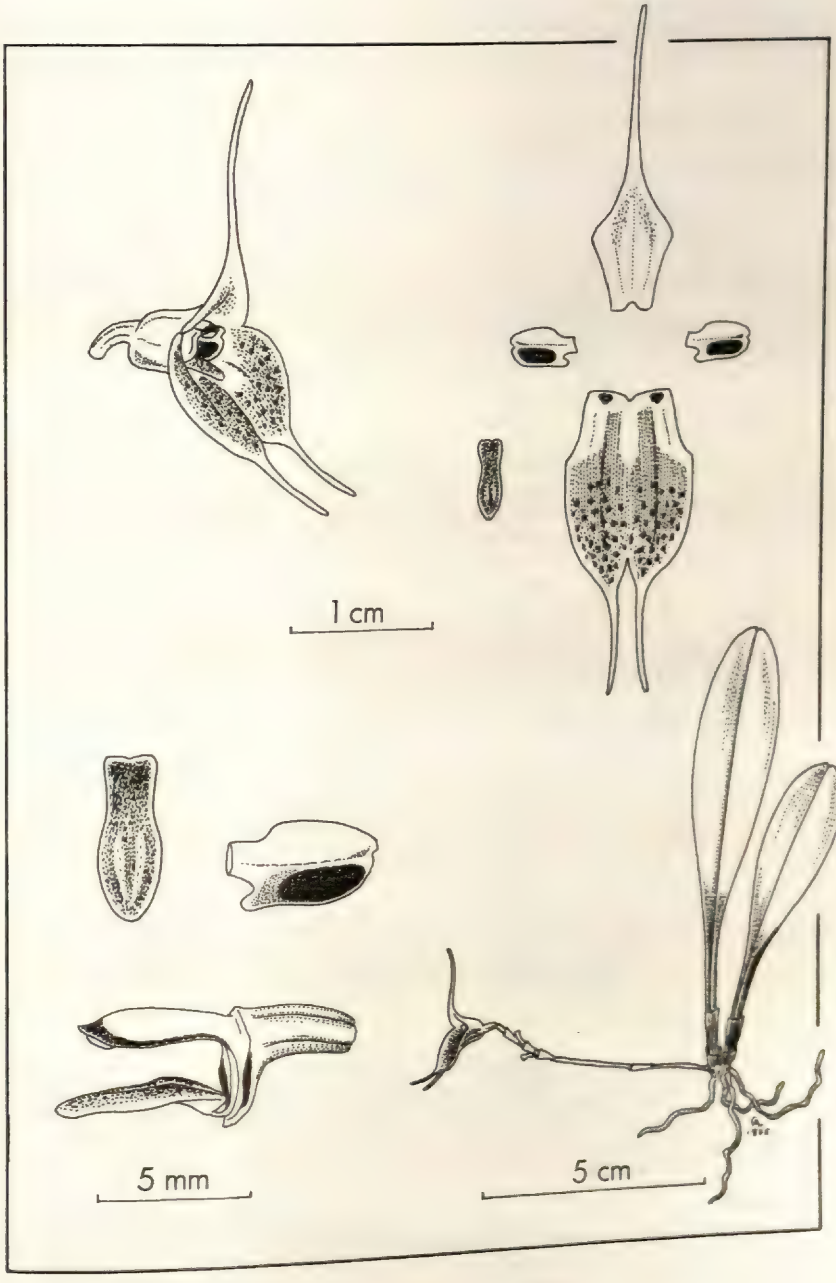


Plate 255. Masdevallia zahlbruckneri

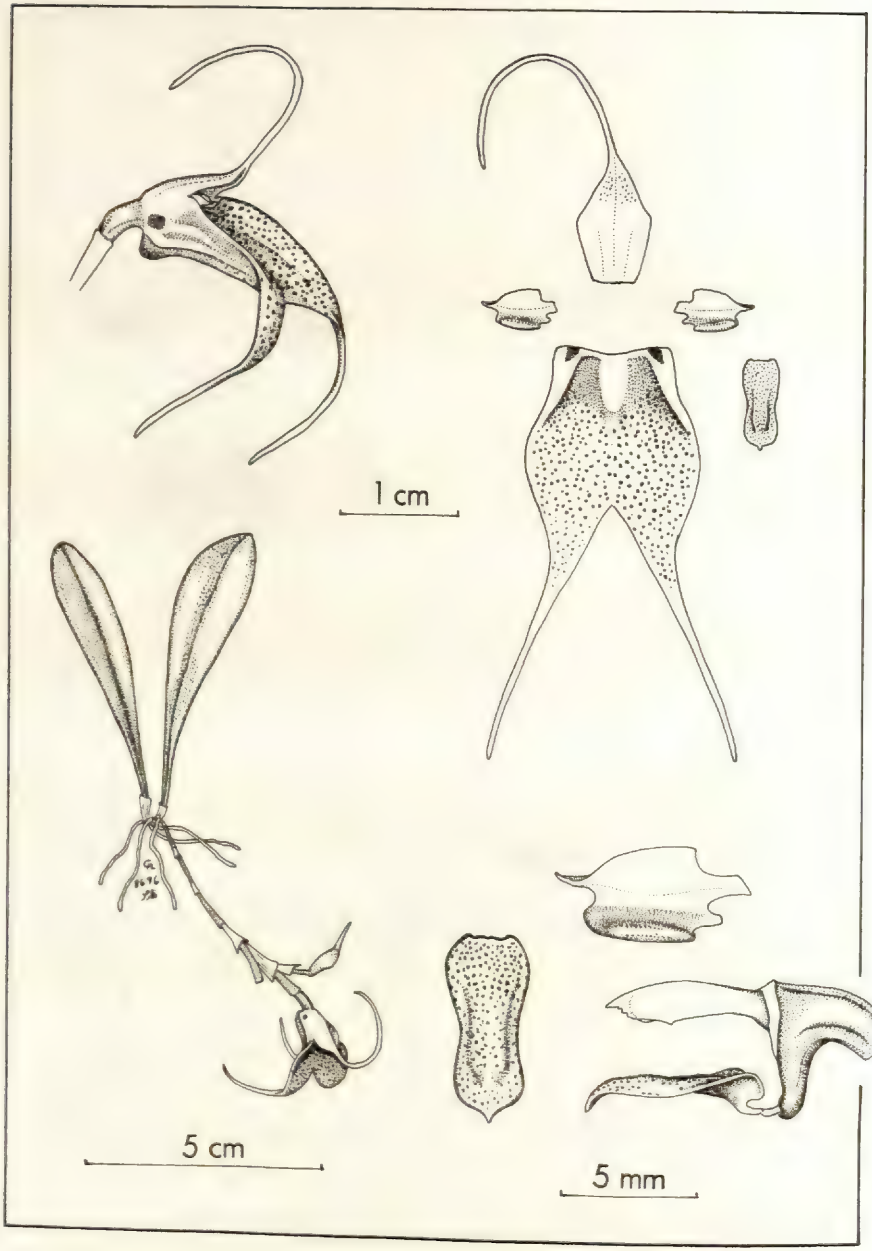


Plate 256. Masdevallia zahlbruckneri

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Masdevallia brachyantha Schltr., Repert. Spec. Nov. Regni Veg. 27: 37, 1929.

Ety.: From the Greek *brachyanthos*, "short-flowered," referring to short peduncle.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 0.5-1 cm long, enclosed by 2-3 thin, close, tubular sheaths. **Leaf** erect, coriaceous, narrowly obovate, subacute, 7-9 cm long including an indistinct petiole 1-1.5 cm long, 0.9-1.2 cm wide, gradually narrowed below into the subpetiolate base. **Inflorescence** a solitary flower, followed soon by a second flower, borne by a slender, erect peduncle, 2-3 cm long, with a bract above the base, from low on the ramicaul; floral bracts tubular, imbricating, 10 mm long; pedicels 12 mm long; ovary 3 mm long; **sepals** dull yellowish, suffused with red-brown, green at the apices, tailless, fleshy with the veins prominent externally, minutely cellular-verrucose within, the dorsal sepal ovate, 21 mm long, 5 mm wide, connate to the lateral sepals for 7 mm into a cylindrical tube, the free portion triangular, acute, forwardly directed, the lateral sepals, oblong-ovate, oblique, 21 mm long, 5 mm wide, connate 7 mm to form a shallow mentum below the column-foot, the free portions triangular, acute; **petals** yellow-white, subovate, thick, 5 mm long, 2.5 mm wide at the broad base, the apex obtuse, obscurely short-apiculate, the labellar half thickened; **lip** brownish, oblong-subpandurate, 4.5 mm long, 2.5 mm wide, shallowly constricted above the middle, overlain by winglike, marginal folds, the apex broadly rounded with a low, midline callus, the disc broadly and shallowly sulcate between the longitudinal folds, the base truncate, concave within erect margins, hinged beneath; **column** yellow-white, semiterete, 4.5 mm long, the foot 2 mm long with a short, incurved extension.

BOLIVIA: **La Paz**: Larecaja, Hacienda Casana, along the way to Tipuani, alt. 1400 m, Jan. 1923, *O. Buchtien 7218* (Holotype lost at B); epiphytic in forest remnant in a valley along Río Tipuani, west of Tipuani, alt. ca. 1200 m, collected August 1991, cultivated in San Francisco by *W. Teague 166* (Neotype here designated: MO), C. Luer illustr. 16328.

This species of subgenus *Polyantha* section *Polyanthae* is apparently endemic along the remote Tipuani river northeast of La Paz where it was first collected by Otto Buchtien in 1923. Never having been in cultivation, it was known only from the description of the original collection until plants were collected in 1991. Identification was made the following year when they flowered in cultivation.

Masdevallia brachyantha is distinguished by the short peduncle, round in cross section, and much shorter than the narrow leaf. Two to three reddish brown, tailless flowers are produced in succession. The sepals are minutely verrucose within; the petals are thick and obtuse without a protruding callus; and the broadly oblong lip has a pair of finlike, marginal folds that overlie a slight constriction above the middle.

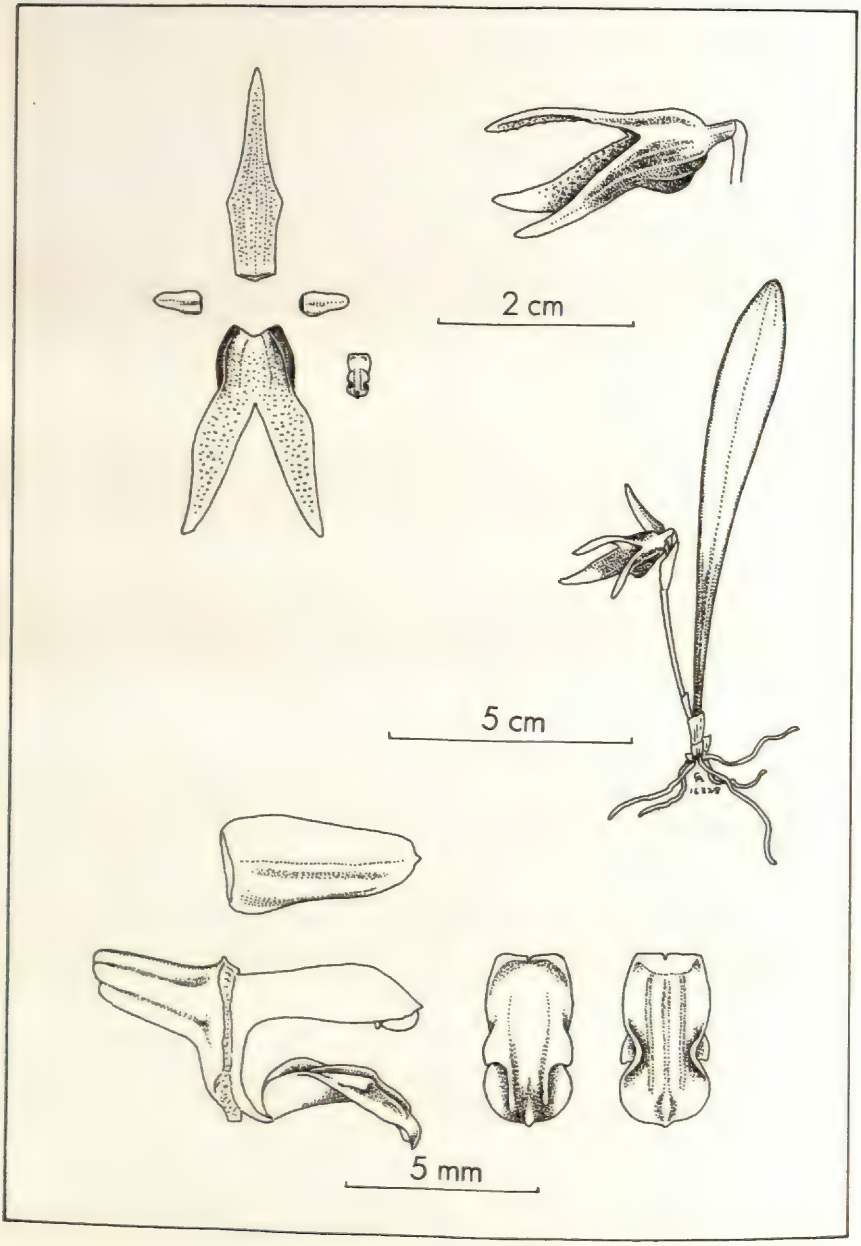

Plate 257. Masdevallia brachyantha

Masdevallia ingridiana Luer & Portilla, sp. nov.

Ety.: Named for Ingrid de Portilla, wife of José Portilla, of Gualaceo, Ecuador.

Inter species subgeneris *Polyanthae* Luer, pedunculo foliis leviter longioribus, floribus aurantiacis, synsepalo expanso quam tubo longiore cum caudis brevioribus, petalis oblongis subacutis, labello oblongo supra medium plicato distinguitur.

Plant medium in size, caespitose; roots slender. Ramicauls slender, erect, 2-2.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, petiolate, 11-14 cm long including the 2-3 cm long petiole, the blade narrowly obovate, obtuse, 2-2.5 cm wide, the base cuneate into the petiole. **Inflorescence** a single flower borne successively in a congested, few-flowered raceme, peduncle erect, slender, triquetrous, 15-17 cm long, from low on the ramicaul; floral bracts tubular, imbricating, 10-12 mm long; pedicels 13-15 mm long; ovary 5 mm long; **sepals** orange, glabrous externally, microscopically subverrucose within, the dorsal sepal ovate, the blade 16-17 mm long, 10 mm wide, connate to the lateral sepals for 9 mm to form a subcylindrical, sepaline tube, the apex acute, acuminate into an erect, slender, orange tail 3 cm long, the lateral sepals connate 20 mm into an ovate, bifid synsepal, 40 mm long, 21 mm wide, shallowly concave below the tip of the column-foot, the apices acute, acuminate into slender tails 6-7 mm long; **petals** white, oblong-ovate, 9 mm long, 2-3 mm wide, with a low carina along labellar margin ending in a rounded callus above the base, the apex obtuse, subapiculate; **lip** orange, oblong, with obtuse, marginal folds near the middle, 9 mm long, 3.5 mm wide, the epichile ovate, longitudinally callous, with the apex round, recurved, abruptly apiculate, the hypochile oblong, shallowly channeled, the base subcordate, hinged beneath; **column** white, semiterete, 7 mm long, the foot 4 mm long, with an incurved extension.

ECUADOR: **Zamora-Chinchipe**: Cordillera del Condor, Chinapintza, alt. 1000 m, Oct. 2000, cultivated at Ecuagenera, Gualaceo, by *J. Portilla 1130* (Holotype: MO), C. Luer illustr. 19425.

Masdevallia ingridiana is apparently endemic in southeastern Ecuador in the Cordillera del Condor. Among the species of section *Alaticaules*, it is most similar to Colombian *M. aguirrei*, but it differs in the larger, orange flower. Vegetatively, the two are indistinguishable, the triquetrous peduncle of *M. ingridiana* being shorter, but still longer than the leaf.

The raceme is congested and successively few-flowered. Beyond the sepaline tube, the synsepal is expanded, ending in a pair of close, short tails. Common to the other species in the section, the petals are oblong with a marginal callus without a protruding process. The oblong lip is also similar with marginal folds between the epichile and the hypochile. The apex is rounded, recurved and abruptly apiculate.

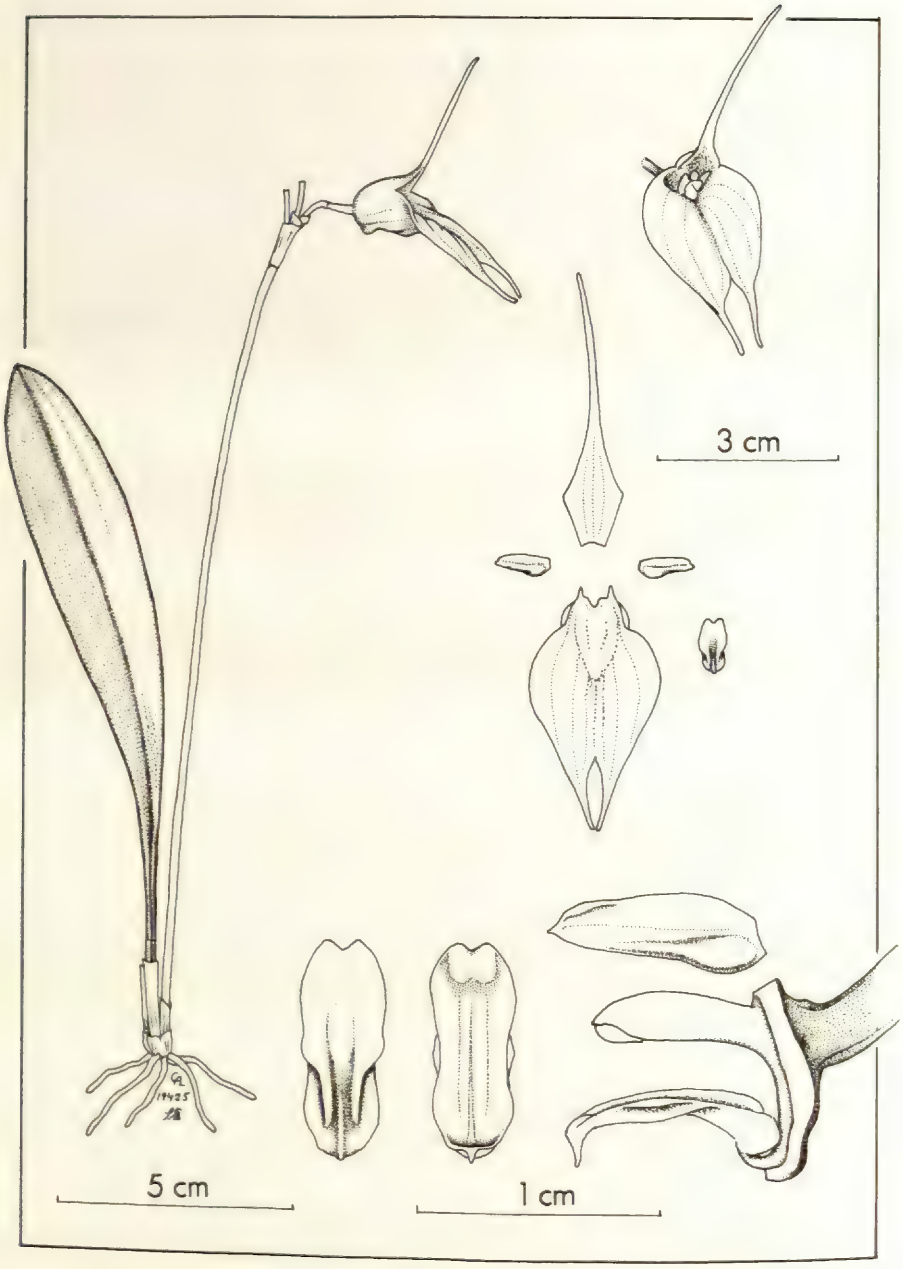

Plate 258. Masdevallia ingridiana

Masdevallia mallii Luer, sp. nov.

Ety.: Named for Malli Rau of Wilmington, Delaware, who cultivates this species.

Inter species subgeneris *Polyanthae* Luer, planta grandis, pedunculo triquetro foliis crassissimis subpetiolatis plus minusve aequilongo, sepalo dorsali con lateralibus in sepalum tubum infundibularem connato, lateralibus lunaribus liberis, petalis oblongis, labello valde recurvato distinguitur.

Plant medium in size to large, epiphytic, caespitose; roots fleshy. Ramicauls stout, erect, 0.7-1.5 cm long, with fugacious, tubular sheaths at the base. **Leaf** erect, thickly coriaceous, 8-14 cm long including an indistinct petiole barely 1 cm long, the blade elliptical, subacute to obtuse, 2-3 cm wide, cuneate below into the base. **Inflorescence** a solitary flower borne successively in a congested raceme up to 3 cm long, by a stout peduncle 12 cm long, with a tubular sheath at the base, from the base of the ramicaul; floral bracts thin, imbricating, 15 mm long; pedicel 20-22 mm long; ovary 5-6 mm long; **sepals** white with the lateral sepals suffused with purple mostly on the inner halves, glabrous externally, cellular-pubescent within, the dorsal sepal obovate, 28 mm long, 11 mm wide, 3-veined, connate to the lateral sepals for 14 mm into an infundibular sepaline tube, the apex acute, contracted into a forwardly directed, light yellow tail ca. 30 mm long, the lateral sepals crescent-shaped with revolute sides, 27 mm long, 11 mm wide expanded, 3-veined, free to the base, with the apices acute, contracted into slender, light yellow tails 12 mm long; **petals** white, cartilaginous, oblong, retuse at the broadly obtuse apex, with both halves callous, 6.75 mm long, 2.75 mm wide, 1-veined; **lip** white, suboblong, strongly arcuate, with marginal folds below the middle, 3.5 mm long unexpanded, 5.5 mm long expanded (fractured), 2.5 mm wide, the epichile acutely recurved, obtuse, apiculate, minutely verrucose with minutely verrucose, longutudinal calli, the hypochile ovate, convex centrally, the base rounded, thickened beneath, hinged to the column-foot; **column** semiterete, white, 4 mm long, the foot 3 mm long with an incurved extension, the anther and stigma ventral.

ECUADOR: **Morona-Santiago**: without data, collected with *M. draconis* Luer & Andreetta by José Portillo and cultivated in Wilmington, DE, flowered 15 Aug. 2000, by *M. Rao 31* (Holotype: MO), C. Luer illustr. 19395.

This species is apparently endemic in southeastern Ecuador where it was collected out of flower with plants of *M. draconis*. As an unidentified specimen it flowered in the collection of Malli Rao in Wilmington, DE.

Vegetatively, the species is remarkable for the thickly rigid, obtuse, elliptical leaf that contracts below into a stout, subpetiolate base. The triquetrous peduncle bears a congested, successively flowered, long-pedicellate raceme. The more or less conical flowers are relatively large and white with purple suffusion on the inner-half of the lateral sepals. The tail of the dorsal sepal points forward. Although connate to the dorsal sepal for more the half its length, the crescent-shaped lateral sepals are free from each other to the base beneath the column-foot. The petals are oblong. The epichile of the lip is acutely reflexed above marginal folds.

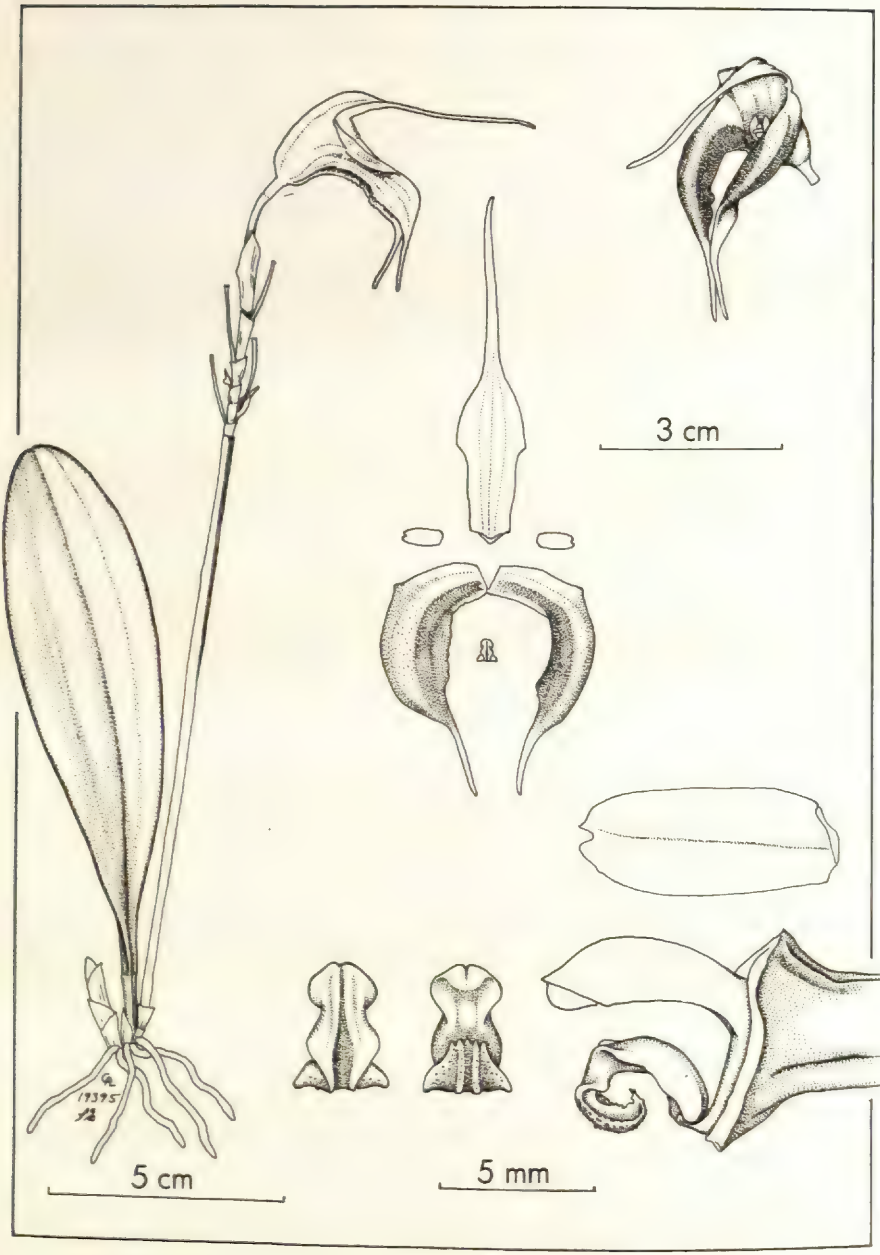

Plate 259. Masdevallia mallii

Masdevallia prolixa Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 79: 125, 2000.

Ety.: From the Latin *prolixus*, "drawn out," referring to the elongated petiole, peduncle, pedicel, and sepaline tails.

Plant large, epiphytic, caespitose; roots thick, fleshy. Ramicauls slender, erect, 3-4 cm long, with a 1-2 tubular sheaths at the base. **Leaf** erect, coriaceous, 16 cm long including a slender petiole 4-5 cm long, the blade narrowly elliptical, subacute, 2 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a solitary flower borne successively in a distantly few-flowered raceme a slender, triquetrous peduncle up to 26 cm long, with a tubular sheath at the base, from the base of the ramicaul; floral bracts thin, 2.5 cm apart, 1.5 cm long; pedicel 4-4.5 cm long; ovary green, 6 mm long; **sepals** glabrous externally, microscopically papular-pubescent within, the dorsal sepal yellow, ovate, acute, long-attenuate, 7 cm long including the forwardly directed tail, 7 mm wide, 3-veined, connate to the lateral sepals for 4 mm into a short, cylindrical, sepaline cup, the lateral sepals connate 25 mm into a broadly oblong, bifid synsepal, 30 mm long, 18 mm wide, 6-veined, with the apices acute, contracted into slender, yellow tails 4 cm long; **petals** yellowish white, cartilaginous, more or less oblong-triangular, acute at the apex, the labellar margin thick with a longitudinal callous terminating in a broad, rounded base, 6 mm long, 1.5 mm wide, 2.5 mm wide at the base, 1-veined; **lip** dark purple, with marginal folds thin, near the middle, 6.5 mm long, the epichile longitudinally channeled, 1.25 mm wide, with the sides revolute and verrucose, the apex long-apiculate, the hypochile oblong, 2 mm wide, the base truncate, flat on the end, thickened beneath, hinged to the column-foot; **column** semiterete, 5.5 mm long, the foot 3 mm long with a short, incurved extension, the anther and stigma ventral.

PERU: **Huánuco**; without specific locality, alt. 2500 m, obtained from M. Arias by J. Portilla, cultivated at Gualaceo, Ecuador, Jan. 2000, *C. Luer 19363* (Holotype: MO).

This species, apparently endemic in central Peru, is distinguished by the long, slender, triquetrous peduncle, and a long-pedicellate, remotely few-flowered raceme. The dorsal sepal is yellow with a long-attenuated tail. Beyond the short sepaline tube, the lateral sepals are connate into a broad, bifid lamina with narrow tails. The petals are acute with a broad, basal callus. The hypochile of the lip is oblong, about as long as the epichile but wider, and the epichile is channeled and narrow with revolute, verrucose sides. The apex is acuminate-apiculate.

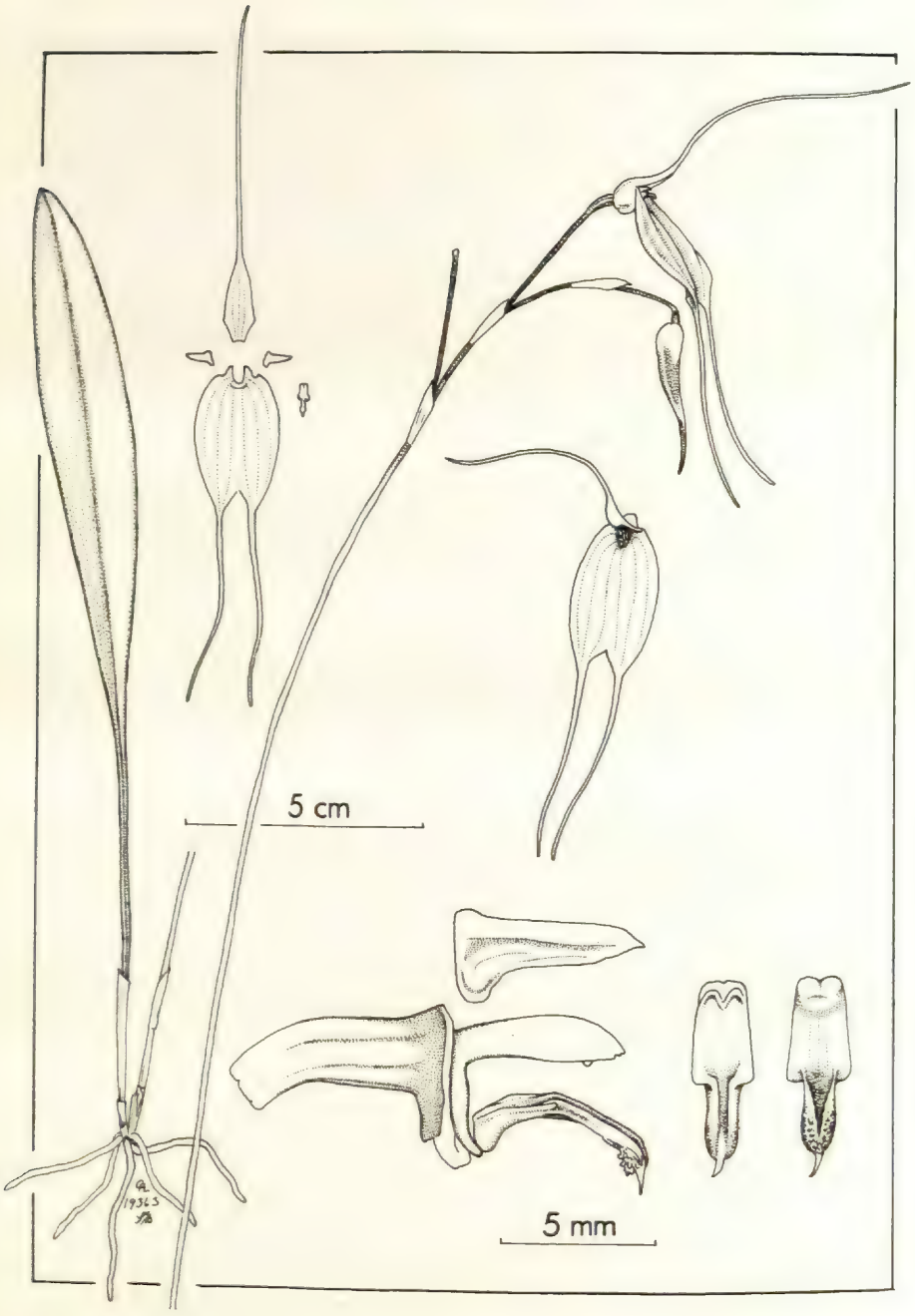

Plate 260. Masdevallia prolixa

Masdevallia venus Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 79: 125, 2000.

Ety.: Named for Venus, goddess of love and beauty.

Plant medium in size, epiphytic, caespitose; roots fleshy. Ramicauls stout, erect, 2-2.5 cm long, with a loose, tubular sheath at the base. **Leaf** erect, coriaceous, 10 cm long including an indistinct petiole 2-3 cm long, the blade narrowly elliptical, subacute, 2 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a solitary flower borne successively in a congested raceme by a stout peduncle up to 26 cm long, with a tubular sheath at the base, from the base of the ramicaul; floral bracts thin, imbricating, 15-20 mm long; pedicel 20-25 mm long; ovary green, 7 mm long; **sepals** yellow but suffused with red-brown mostly above the middle, glabrous externally, with a small dark spot at the base, microscopically pubescent within, the dorsal sepal ovate, 45 mm long including the tail, 16 mm wide, 3-veined, the apex long-acuminate in a forwardly directed, yellow tail, connate to the lateral sepals for 9 mm into a shallow, gaping sepaline cup, the lateral sepals 23 mm long, connate 17 mm into a broadly expanded, ovate synsepal, 30 mm wide, 6-veined, with the apices obtuse, contracted into slender, yellow tails 16 mm long; **petals** yellowish white, cartilaginous, more or less oblong, minutely tridentate at the truncate apex, with both halves callous, the labellar margin thick with a longitudinal callous terminating in a low, rounded callus at the base, 6.5 mm long, 2.5 mm wide, 1-veined; **lip** dark purple, subpandurate, with thick marginal folds above the middle, 7.5 mm long, 3 mm wide, the epichile minutely verrucose, with the sides recurved and undulate, apex recurved, long-apiculate, the hypochile oblong, twice longer than the epichile, the base truncate, thickened beneath, hinged to the column-foot; **column** semiterete, 6 mm long, the foot 5 mm long with an incurved extension, the anther and stigma ventral.

ECUADOR: Without locality, collected and cultivated in Quito by *A. Hirtz 7110* (Holotype: MO), C. Luer illustr. 19323.

This lovely species is cultivated in Quito, Ecuador, by Alexander Hirtz. Unfortunately, the collection data have disappeared. Among the members of section *Alaticaules*, this species is distinguished by the long, stout peduncle, and a congested, long-pedicellate, successively flowered raceme. The sepals are yellow but generously suffused with red-brown. They are connate into a shallow, gaping cup with the synsepal broadly expanded. The petals are oblong and tridentate. The hypochile of the lip is oblong, twice longer than the epichile with revolute margins and long-apiculate apex.

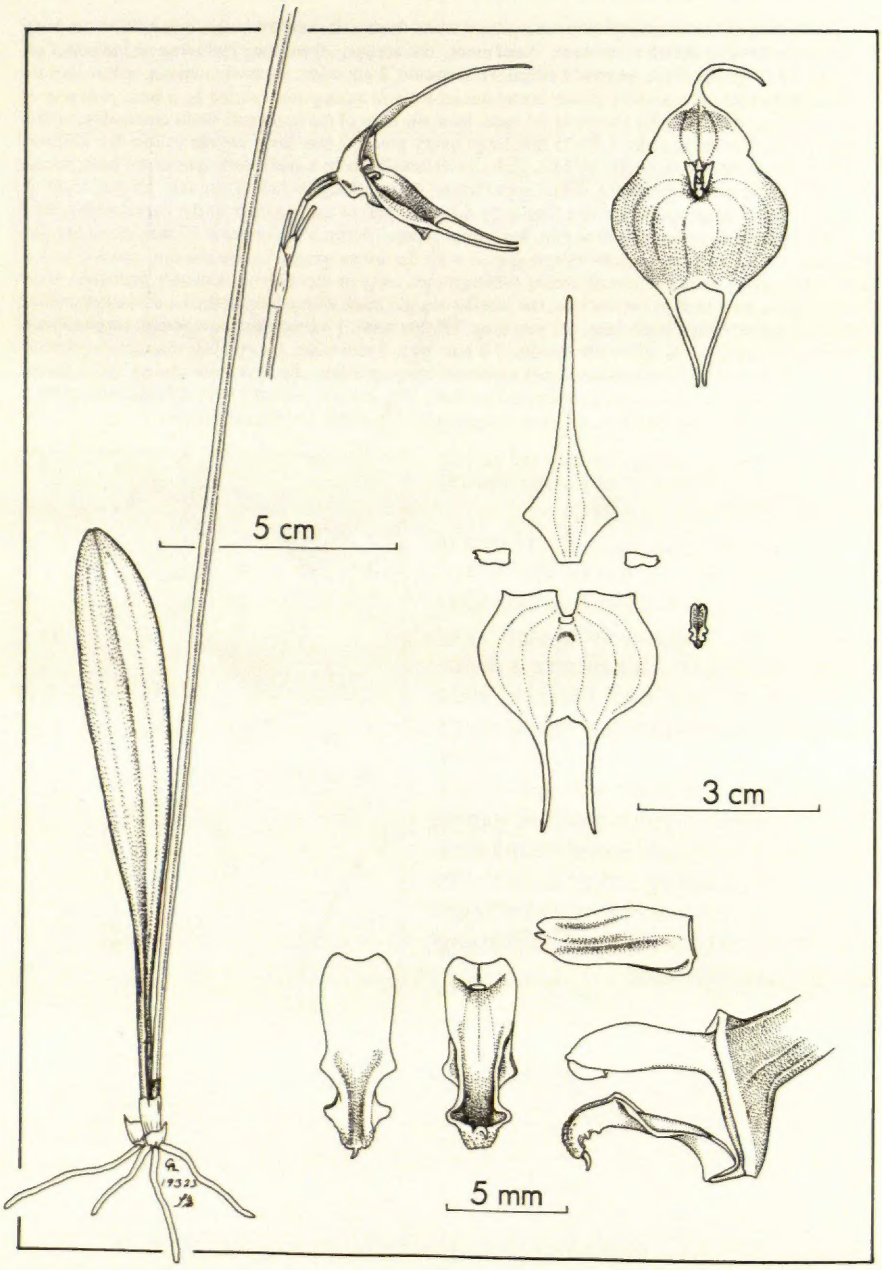

Plate 261. Masdevallia venus

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